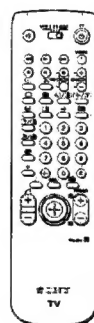
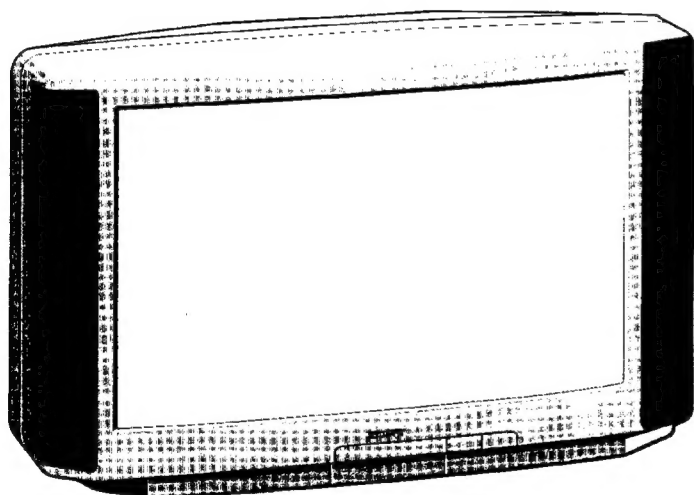


SERVICE MANUAL

AE-4 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-32WX2A	RM-862	Italian	SCC-K43F-A	KV-32WX2E	RM-862	Spanish	SCC-K42F-A
KV-32WX2B	RM-862	French	SCC-K45F-A	KV-32WX2U	RM-862	UK	SCC-K46B-A
KV-32WX2D	RM-862	AEP	SCC-K41F-A				



SuperTrinitron

WIDE

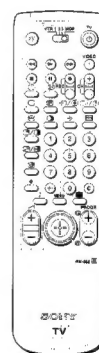
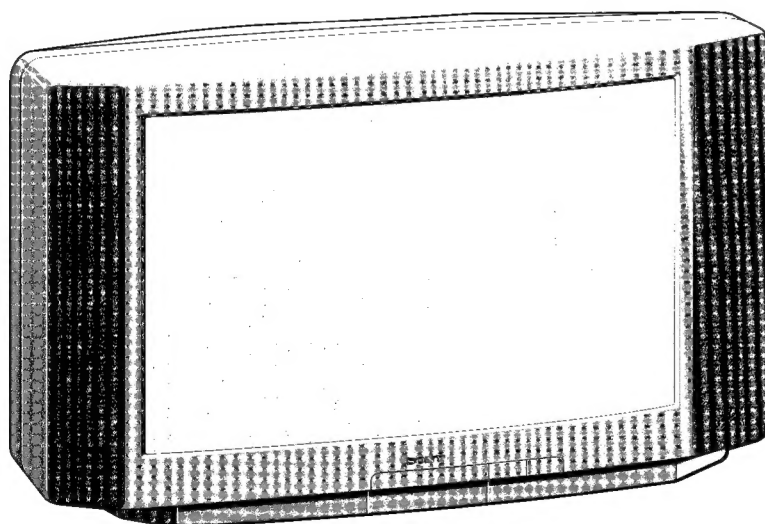
TRINITRON® COLOR TV
SONY®



SERVICE MANUAL

AE-4 CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-28WS4A	RM-862	Italian	SCC-K43C-A	KV-28WS4E	RM-862	Spanish	SCC-K42C-A
KV-28WS4B	RM-862	French	SCC-K45C-A	KV-28WS4K	RM-862	OIRT	SCC-K44E-A
KV-28WS4D	RM-862	AEP	SCC-K41C-A	KV-28WS4R	RM-862	OIRT	SCC-K44F-A



Super**Trinitron**

WIDE

TRINITRON® COLOR TV
SONY®



ITEM	MODEL	Television System	Channel Coverage	Colour System
Italian	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: S1-S20 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: S1-S41, UHF: S01-S05	PAL, PAL+, SECAM NTSC3.58/4.43 (video input only)	
French	B/G/H, D/K, L, I	L SECAM VHF: F2-F10 UHF: F21-F69 TV CABLE TV (1) VHF: B-Q UHF: S21-S44 PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 PAL I UHF: B21-B69 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: S1-S41, UHF: S01-S05	PAL, SECAM NTSC3.58/4.43 (video input only)	
AEP	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: S1-S20 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: S1-S41, UHF: S01-S05	PAL, PAL+, SECAM NTSC3.58/4.43 (video input only)	
Spanish	B/G/H, D/K	PAL B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: S1-S41, UHF: S01-S05	PAL, PAL+, SECAM NTSC3.58/4.43 (video input only)	
OIRT	B/G/H, D/K	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF: A-H, H1, H2 D/K VHF: R01-R12 UHF: R21-R69 CABLE TV VHF: S1-S41, UHF: S01-S05	PAL, PAL+, SECAM NTSC3.58/4.43 (video input only)	

MODEL	28WS4A	28WS4B	28WS4D	28WS4E	28WS4K	28WS4R
Power Consumption	122W	131W	135W	135W	135W	135W

SPECIFICATIONS

Picture Tube Super Trinitron WIDE
Approx. 71 cm (28 inches)
(Approx. 66 cm picture measured
diagonally) 110° deflection

[FRONT]

- ➡ 3 Video input - phono jack
- ➡ 3 Audio inputs - phono jacks
- ➡ 3 S video input - 4 pin DIN
- 🎧 Headphones jack: stereo minijack

Rear/Front Terminals

[REAR]

- ➡ 21-pin Euro connector (CENELEC standard)
 - Inputs for audio and video signals
 - Inputs for RGB
 - Outputs of TV video and audio signals
- ➡ 2/ ➡ 2 21-pin Euro connector
 - Inputs for audio and video signals
 - Inputs for S video
 - Outputs for audio and video signals (selectable)
- ➡ Audio outputs (variable) - phono jacks
- External speaker terminals : 2-pin DIN (5)

- Sound output 2x30W (music power), 2x15W (RMS)
Centre 1x30W (Music), 1x15W (RMS)
Surround 2x15W (Music), 2x7.5W (RMS)
- Dimensions 798x491x531 mm approx.
- Weight Approx. 47.0 kg
- Supplied accessories Remote Commander RM-862 (1)
Batteries R6 (2)
Surround speaker (2)
Surround Loudspeaker lead (2)
Centre speaker lead (1)
Aerial cable (1)

Other features

- Digital comb filter (High resolution)
- FASTEXT, DNR (Digital Noise Reduction)
- Dolby Digital Surround System, 100Hz Digital Plus
- Graphic Equalizer, PAP (Picture and Picture)
- PAL plus, Multi PIP
- NICAM stereo (KV-28WS4B and 28WS4U only)

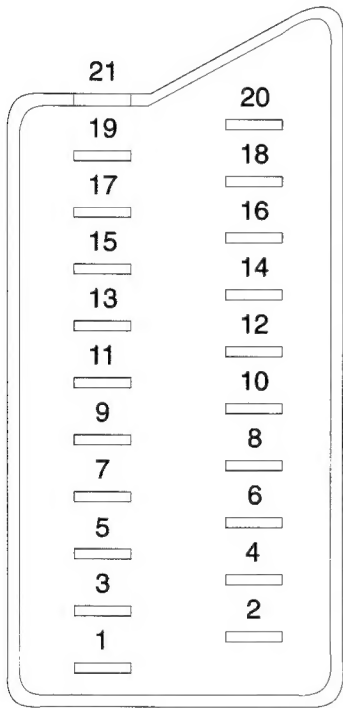
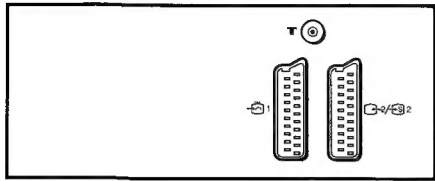
[RM-862]

Remote control system	Infrared control
Power requirements	3V dc (2 batteries) R6 (size AA)
Dimensions	Approx. 210x56x24 mm (w/h/d)
Weight	Approx. 110g (Not including battery)

Design and specifications are subject to change without notice.

Model name Item	KV-28WS4A	KV-28WS4B	KV-28WS4D	KV-28WS4E	KV-28WS4K	KV-28WS4R
PIP	OFF	OFF	OFF	OFF	OFF	OFF
MPIP	ON	ON	ON	ON	ON	ON
Rotation Coil	ON	ON	ON	ON	ON	ON
VM Set (Velocity Modulation)	ON	ON	ON	ON	ON	ON
PAL +	ON	ON	ON	ON	ON	ON
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front in (3)	ON	ON	ON	ON	ON	ON
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON
TXT	ON	ON	ON	ON	ON	ON
FLOF	ON	ON	ON	ON	ON	ON
TOP	ON	ON	ON	ON	ON	ON
Norm B/G/H	ON	ON	ON	ON	ON	ON
Norm I	OFF	ON	OFF	OFF	OFF	OFF
Norm D/K	ON	ON	ON	ON	ON	ON
Norm L	OFF	ON	OFF	OFF	OFF	OFF
Language Preset	Italian	French	German	Spanish	OIRT	OIRT

21 pin connector (S1, S2)



Pin No.	1	2	4	Signal	Signal Level
1	○	○	○	Audio output B (Right)	Standard level : 0.5V rms Output impedance : Less than 1k ohms*
2	○	○	○	Audio input B (Right)	Standard level : 0.5V rms Output impedance : More than 10k ohms*
3	○	○	○	Audio output A (Left)	Standard level : 0.5V rms Output impedance : Less than 1k ohm*
4	○	○	○	Ground (Audio)	
5	○	○	○	Ground (Blue)	
6	○	○	○	Audio input A (Left)	Standard level : 0.5V rms Output impedance : Less than 10k ohm*
7	○	●	●	Blue input	0.7 ± 3dB, 75 ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5 - 12V) : Part mode Low state (0 - 2V) : TV mode Input impedance : More than 10k ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (Green)	
10	○	○	○	Open	
11	○	●	●	Green	
12	○	○	○	Open	
13	○	○	○	Ground (Red)	
14	○	○	○	Ground (Blanking)	
15	○	—	—	Red input	0.7 ± 3dB, 75 ohms, positive
	—	○	○	(S signal) chroma input	0.7 ± 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1 - 3V) Low state (0 - 0.4V) Input impedance : 75 ohms
17	○	○	○	Ground (Video output)	
18	○	○	○	Ground (Video input)	
19	○	○	○	Video output	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
20	○	—	—	Video input	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
	—	○	○	Video input Y (S signal)	1V ± 3dB, 75ohms, positive sync : 0.3V (-3 + 10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● Not Connected (Open) * at 20Hz - 20kHz

Pin No.	Signal	Signal Level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75 ohm, positive Sync. 0.3V -3 + 10dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive Sync.

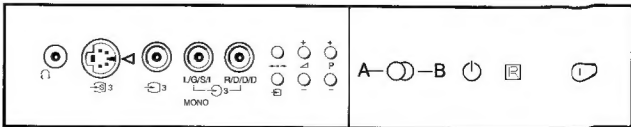


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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.


ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

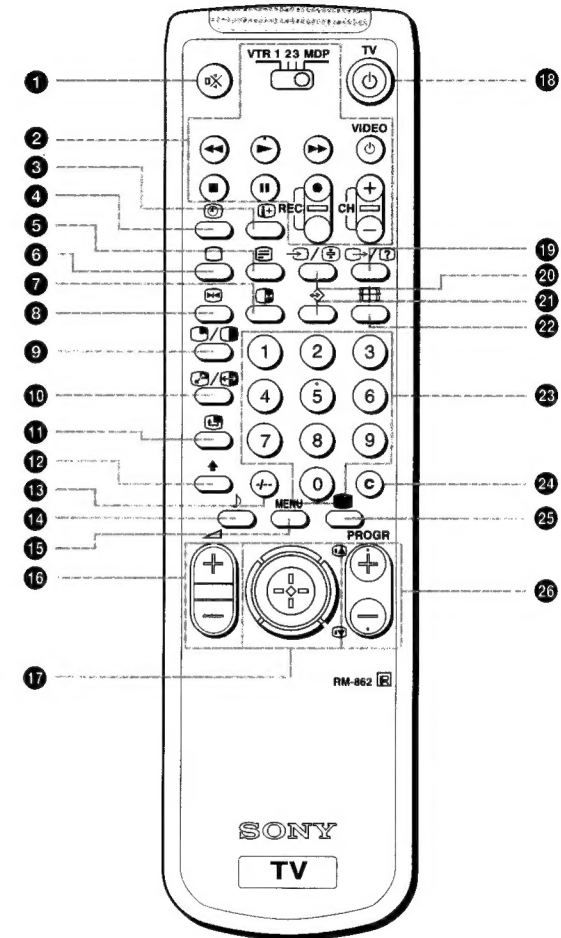
ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

The operating instructions mentioned here are partial abstracts from the Operating Instructions Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

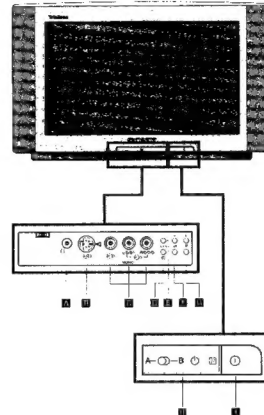


Overview

This section briefly describes the buttons and controls on the TV set and on the Remote Commander. Please open the flaps at the front and at the back of the Instruction Manual for detailed illustrations of the Remote Commander and the TV set. Letters in boxes refer to the buttons and connectors on the TV set, numbers in circles to the buttons on the Remote Commander. For more information, refer to the pages given next to each description.

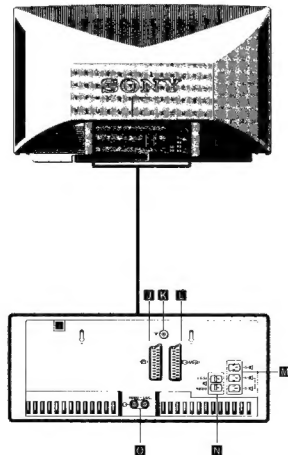
TV set – front

Reference and Symbol	Name	Refer to page
A	Headphones jack	13
B	S video input jack	20
C	Input jacks (video, audio)	20
D	Reset button	7
E	Input mode button	7
F	Volume control	7
G	Programme buttons	7
H	Standby mode indicator	7
I	Main power switch	7



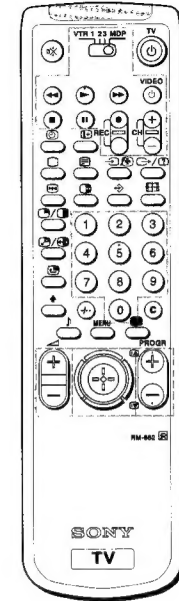
TV set – rear

Reference and Symbol	Name	Refer to page
J	21-pin Euro connector	20
K	Aerial socket	5
L	21-pin Euro connector	20
M	External speaker terminals (Centre, Surround)	4
N	Left and right speaker terminals	4
O	Audio phono jacks	20



Remote Commander

Reference and Symbol	Name	Refer to page
1	Muting on/off button	7
2	VCR operation	21
VTR 123 MDP	Video equipment selector	21
	Video equipment operation buttons	21
VIDEO	VIDEO CH +/-	
3	On-screen display button	7
4	Time display button	7
5	Teletext button	7, 17
6	TV power on/TV mode button	7
7	PAP freeze button	16
8	Freeze button	7
9	PAP on/off button	16
10	PAP Swap button	16
11	No function on this set	
12	PAP source selector	16
13	Double digit entering button	7
14	Sound mode button	13
15	Menu on/off button	8
16	Volume control button	7
17	Joystick for Menu selection	8
	Press to confirm selection (OK function)	
18	TV standby button	7
19	Output mode selector	20
20	Teletext: Reveal button	17
21	Input mode selector	7
22	Teletext: Freezing the subpage	17
23	Teletext: Favourite pages button	19
24	Screen format button	7
25	Number buttons	7
26	Direct channel entering button	7
27	Picture mode button	13
28	Programme buttons	7
29	PROGR +/-	7
30	Teletext: Page up/page down buttons	17



Basic Operation

Step 1 Installation

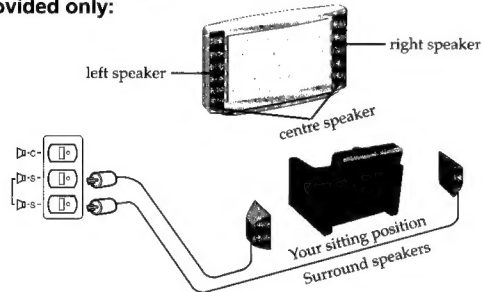
A Connecting the Speakers

! Before first switching the TV on, make sure to connect the speakers to the TV.

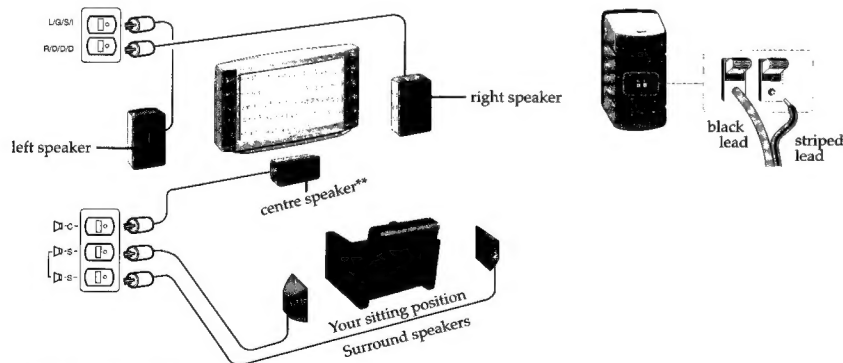
Connect the speakers using the leads provided. The striped lead (+) is for the red terminal of the speaker. The black lead (-) is for the black terminal. When using your own speakers, make sure they are at least 8 ohms impedance and magnetically shielded.

Dolby® Pro Logic Surround normally requires 5 speakers:
Centre speaker (incorporated in the TV) – for anchoring the stable sound image, like dialogues, to the TV screen.
Left and right front speakers (incorporated in the TV) – for the normal two channel stereo or bilingual broadcasts.
Surround speakers – for the special effects created by the surround channel.

Connect the speakers provided only:



Connect your own speakers:



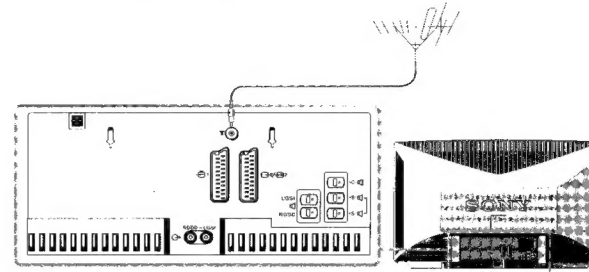
* Manufactured under license from Dolby Laboratories Licensing Corporation.
 ®Dolby®, the double-D symbol and ®Pro Logic® are trademarks of Dolby Laboratories Licensing Corporation.

** Use the supplied speaker cable to connect the centre speaker.

Installation

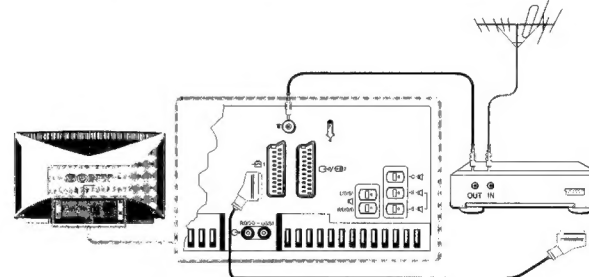
B Connecting the Aerial

(If you connect a VCR, skip to step C)
 Insert the aerial plug of the supplied aerial cable tightly into the aerial socket T1 K.



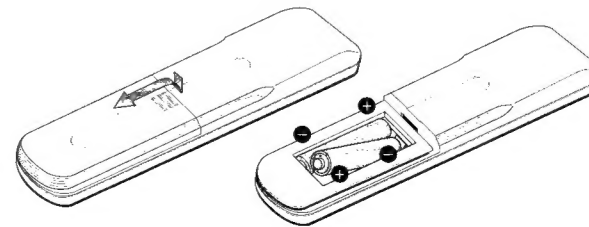
C Connecting a VCR

We recommend that you tune in the VCR signal to the programme position »0«.
 Use the preset function »Manual Programme Preset« (page 8) to do this.



D Inserting the batteries into the Remote Commander

Insert the batteries checking the correct polarities.



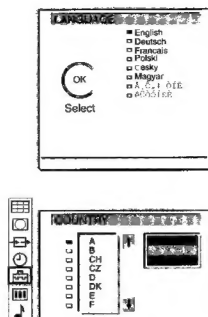
! Respect your environment! Dispose of used batteries in an environmental friendly way.

Step 2 Basic Presetting

A Choosing the Menu Language and the Country

Using this function you select the language of the menu screens. Also you select the country in which you will use the TV. In this way the channels of the selected country will automatically get the top positions during automatic presetting.

- 1 Press the power switch ① on the TV. If the standby indicator ② on the TV is lit, press ③ or a number button ④ on the Remote Commander. Press the MENU button ⑤ on the Remote Commander. The menu LANGUAGE appears.
- 2 Push the joystick ⑥ to blue or green to select the language. Press the joystick ⑦ to confirm your selection. The menu COUNTRY appears.
- 3 Push the joystick ⑥ to blue or green to select the country in which you wish to operate the TV. Press the joystick ⑦ to confirm the selection.
- 4 Press MENU ⑤ to restore the normal TV picture.



B Presetting Channels Automatically

With this function the TV automatically searches and stores up to 100 channels onto programme positions. If you prefer »Manual Presetting of channels« please refer to page 8 in Advanced Operation.

- 1 Press MENU ⑤.
- 2 Push the joystick ⑥ to blue or green to select the symbol ⑧ on the menu screen, then push to yellow.
- 3 Push the joystick ⑥ to blue or green to select »Auto Programme«, then push to yellow. The menu AUTO PROGRAMME appears.
- 4 a) All items shown on the menu screen are as wanted: Press joystick ⑥ to select START. Now the automatic channel presetting starts from programme position 1.
or
b) You wish to change items as shown on the menu screen: Push the joystick ⑥ to blue or green. Push to yellow repeatedly until the desired item is highlighted.

Push the joystick ⑥ to blue or green to select the following possibilities:

ACI

(Automatic Channel Installation, depending on availability of service in your country) on: fast channel presetting by special networks using the channel frequency (e.g. F055) TV-system and station label
off: ACI is not active, only ITP (Intelligent Tuner Preset)

SYS (TV Broadcast System)

B/G for Western European Countries
D/K for Eastern European Countries

PROG (Programme Position)

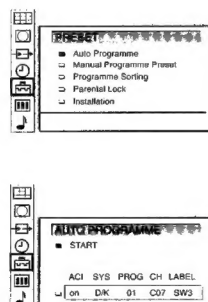
Presetting automatically starts from position 1.

CH (channel)

C to start presetting with terrestrial channels
S to start presetting with cable channels

Press the joystick ⑥ as soon as the automatic presetting should start.

- 5 When presetting is finished the normal TV picture appears.



Joystick

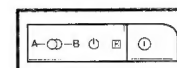


Step 3 TV operation

Using Direct Access Buttons

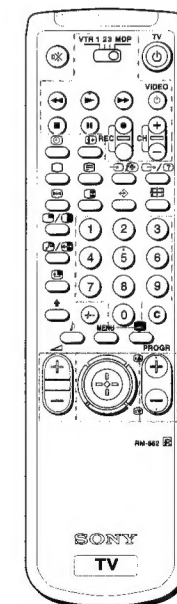
This section explains functions used while watching TV. Most operations are carried out using the Remote Commander (numbers in circles). All basic functions are also available on the TV set itself (letters in boxes).

To	Press
Switch on	• ① ① on TV.
Switch off temporarily (Standby mode)	• ② ②. TV is now in standby mode and indicator ③ ③ lights up.
Switch on from standby mode	• ④ ④, PROG +/ - ⑤ ⑤ or any number button ⑥ ⑥.
Switch off completely	• ① ① on TV. ! To save energy, we recommend to switch off your TV completely when TV is not in use.
Select programmes	• PROG +/ - ⑤ ⑤ or number buttons ⑥ ⑥. For double digit number, press -/ - ⑤ ⑤, then the two number buttons ⑥ ⑥. E.g. for 24, press ⑥ ⑥, then 2 and 4.
Display a programme table	• The joystick ⑦ ⑦. Push the joystick ⑦ ⑦ to blue or green to select a programme, then press the joystick ⑦ ⑦ to confirm.
Display on screen indications	• ⑧ ⑧. Press again to make the indications disappear.
Adjust the volume	• ⑨ ⑨ or - ⑩ ⑩.
Mute the sound	• ⑪ ⑪. Press again to restore the sound.
Display the time (only available when teletext is broadcast)	• ⑫ ⑫. Press again to make the display disappear.
Tune in a channel temporarily	• »C« ⑬ ⑬ once for terrestrial channels, twice for cable channels. The indication »C« or »S« for cable channels appears. Enter the channel number with two digits, e.g. for 4, press ⑭ ⑭, then 4.
View the input of a connected device (see also page 20)	• ⑮ ⑮ repeatedly until the desired input signal appears. Press ⑯ ⑯ to restore the normal TV picture.
View teletext (see also page 17)	• ⑰ ⑰ to switch on. Input a page number, using the number buttons ⑱ ⑱ (e.g. for page 125, press 1, 2 and 5). ⑲ ⑲ to switch off.
Change the screen mode (see also page 15)	• ⑳ ㉑ repeatedly. The mode changes as follows: Auto Wide → Smart → Zoom/PAL Plus → Wide → 4:3
Freeze the picture	• ㉒ ㉒. Press again to restore the normal TV picture.
Reset picture settings to factory levels	• ㉓ ㉓.



PROGRAMME TABLE

1	ARD
2	ZDF
3	SWF
4	RTL 2
5	KAB 1
6	PRO 7
7	
8	

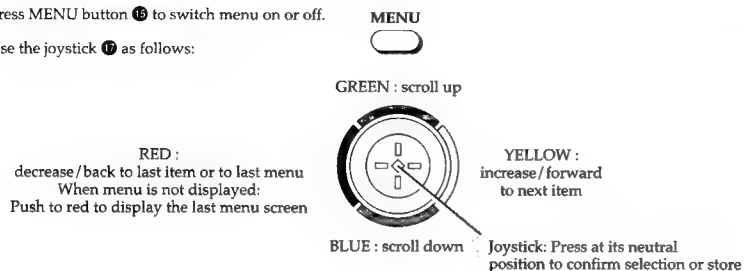


Using the Menu System

Use the following buttons on the Remote Commander to operate the Menu system:

1 Press MENU button **15** to switch menu on or off.




2 Use the joystick **17** as follows:

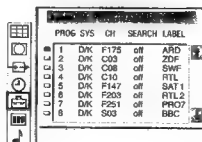
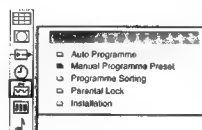


Advanced Presetting

Presetting Channels Manually

Using this function you can preset channels one by one to different programme positions. It is also convenient to allocate programme numbers to video input sources.

- 1 Press **MENU** .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen.
Push to yellow to confirm the selection.
- 3 Push to blue or green to select »Manual Programme Preset«. Push to yellow to confirm the selection.
- 4 Push to blue or green to select the programme position (PROG) to which you want to preset a channel. Push to yellow to confirm.
- 5 Push to blue or green to select the TV broadcast system (SYS) (B/G for western European countries, D/K for eastern European countries) or a video input source (EXT). Push to yellow to confirm.
- 6 Push to blue or green to select »C« (for terrestrial channels), »S« (for cable channels) or »F« (for channel frequency). Push to yellow to confirm.



There are two possibilities to preset channels manually:

a) You know the channel number or channel frequency.
Please use method »Direct input«.

or

b) You don't know the channel number or frequency.
Please use method »Search«.

continued >>>>>>>

Advanced Presetting

7a) Direct Input


For channel numbers you need to input a two digit number, for the frequency a three digit number.

- Push to blue or green to select the first digit of the channel number or frequency. Push to yellow to confirm.
- Push to blue or green to select the second digit of the number or frequency. Push to yellow to confirm. In case of the channel number the search starts.
- Push to blue or green to select the third digit of the frequency number. Push to yellow to start the search of the frequency.
- To continue search for another channel: Push to blue or green.
- To store the selected channel: Press the joystick **①**.
- Repeat steps 4 to 7a) to preset other channels.

Joystick








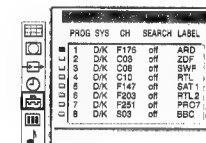
7b) Search

- Push repeatedly to yellow until a blue and a green arrow appear in the section SEARCH.
- Push to blue or green to search for the next available channel.
- To continue search for another channel: Push to blue or green.
- To store the selected channel: Press the joystick .
- Repeat steps 4 to 7b) to preset other channels.

Captioning a Station Name

Channels are usually automatically labelled during presetting. You can, however, individually name a channel or a video source using up to five characters.






- 1 Press MENU .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Manual Programme Preset«. Push to yellow to confirm.
- 4 Push to blue or green to select the programme position with the channel you want to label. Push to yellow repeatedly until the first element of the position LABEL is highlighted.
- 5 Push to blue or green to select a letter or a number (select »-« for a blank). Push to yellow to confirm. Select the other four characters in the same way.
- 6 After selecting all characters, press the joystick .
- 7 Repeat steps 4 to 6 to label other channels or video sources.
- 8 Press MENU  to restore the normal TV picture.



Advanced Presetting







Skipping Programme Positions

This function enables you to skip unused programme positions when selecting them with the PROGR +/- buttons. However, by using the number buttons you can still select the skipped programme position.

- 1 Press MENU .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Manual Programme Preset«. Push to yellow to confirm.
- 4 Push to blue or green to select the programme position you want to skip. Push to yellow to confirm.
- 5 Push to blue or green to select »----« in the position SYS (system). Press the joystick  to confirm.
- 6 Repeat steps 4 and 5 to skip other programme positions.
- 7 Press MENU  to restore the normal TV picture.









Sorting Programme Positions

This function enables you to sort the programme positions to a preferable order.

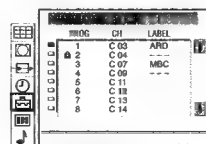
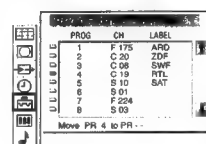
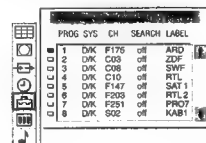
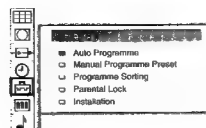
- 1 Press MENU .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Programme Sorting«. Push to yellow to confirm.
- 4 Push to blue or green to select the programme position of the channel you want to exchange. Press joystick  to confirm.
- 5 Push to blue or green to select the programme position of the second channel. Press joystick  to confirm. Now the two programme positions are swapped and sorted.
- 6 Repeat steps 4 and 5 to sort other programme positions.
- 7 Press MENU  to restore the normal TV picture.

Using Parental Lock

This function enables you to prevent children watching undesirable broadcasts.

- 1 Press MENU .
 - 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
 - 3 Push to green or blue to select »Parental Lock«. Push to yellow to confirm.
 - 4 Push to green or blue to select the channel you want to block. Press the joystick  to confirm. The symbol  appears before the programme position to indicate that this channel is now blocked.
 - 5 Repeat step 4 to block other channels.
 - 6 Press MENU  to restore the normal TV picture.
- ! To unblock: Select the channel to unblock in the menu »Parental Lock«. Press the joystick . The symbol  disappears.

Joystick










Advanced Presetting

Using »Further Programme Preset«


Using the menu »Further Programme Preset« you can







- a) in case of a strong local aerial signal (striped picture) attenuate the signal individually for each programme position (RF attenuator).
- b) individually adjust and store the volume level of each channel (Volume offset).
- c) in case of picture or sound distortions use manual fine tuning to obtain a better picture quality. The factory setting is »on« for AFT (Automatic Fine Tuning).

- 1 Press MENU .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Installation«. Push to yellow to confirm.
- 4 Push to blue or green to select »Further Programme Preset«. Push to yellow to confirm.
- 5 Push to blue or green to select the programme position you want. Push to yellow repeatedly to select:
 - a) ATT (RF attenuator), b) VOL (Volume Offset) or c) AFT (Automatic Fine Tuning). The selected item changes colour.

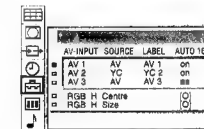
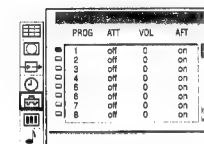
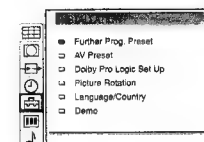
- a) ATT
Push to blue or green to select »ON« for the programme position and press the joystick  to confirm. Repeat step 6 to attenuate other programme positions.
 - b) VOL
Push to blue or green to adjust the volume for the selected programme position within a range of -7 to +7. Press the joystick  to confirm. Repeat step 6 to set the volume level for other programme positions.
 - c) AFT
Push to blue or green to fine-tune the channel within a range of -15 to +15. Press the joystick  to confirm. Repeat step 6 to fine-tune other channels.
- 7 Press MENU  to restore the normal TV picture.

Using »AV Preset«

Using this function you can preset the desired input source (e.g. , RGB signal) to the respective AV input (AV1). In this way a connected VCR switches automatically to the RGB signal. Also you can label the input sources.

- 1 Press MENU .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Installation«. Push to yellow. Push to blue or green to select »AV Preset«. Push to yellow to confirm.
- 4 Push to blue or green to select the desired AV input. Push to yellow to confirm.
- 5 Push to blue or green to select the desired source. Push to yellow to confirm. For the respective AV inputs you have the following choice:
AV1: RGB or AV
AV2: YC2 or AV
AV3: YC3 or AV
- 6 To label a source: Push to blue or green to select the first character (letter or number, »-« for a blank). Push to yellow to confirm. Select the other four characters in the same way.
- 7 For automatic format and PAL plus selection (Auto 16:9):
Push to blue or green to select »On« for the AV input.
- 8 Press the joystick  to store.
- 9 Repeat steps 4 to 8 for the other AV inputs.
- 10 For RGB input source only: Push to blue or green to select RGB H Centre.
 - Push to yellow to confirm.
 - Push to blue or green to adjust the centre of the picture in a range of -5 to +5. Press the joystick  to store.
 - Repeat step 10 to adjust RGB H Size.
- 11 Press MENU  to restore the normal TV picture.





Joystick






Advanced Presetting

Setting up Dolby Pro Logic

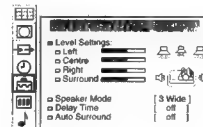
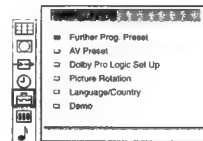
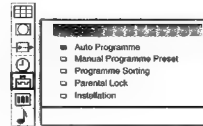
Before listening to Dolby Pro Logic encoded programmes, you should adapt the Dolby Pro Logic features to your individual requirements. This setting up of the levels and modes of the speakers normally is required only when installing the TV and the speakers or when changing the position of the speakers.

- 1 Press MENU .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Installation«. Push to yellow to confirm.
- 4 Push to blue or green to select »Dolby Pro Logic Set up«. Push to yellow to confirm.
- 5 Push to yellow. The setting »Left« (sound level of the left speaker) changes colour. You hear a test tone from the left speaker.
- 6 Push to yellow. Push to red or yellow to adjust the level. Press the joystick  to confirm.
- 7 Push to blue or green to select Centre (Centre speaker), Right (right speaker) or Surround (Surround speakers). Repeat step 6 to adjust the sound level of a speaker. Repeat steps 6 and 7 to adjust all sound levels (from your sitting position all levels should be the same). Push to red.
- 8 Push to blue to select »Speaker mode«. Push to yellow to confirm.
- 9 Push to blue or green to select:
 - Normal - all speakers are activated
 - Phantom - centre speaker is not used
 - Wide - wider bandwidth sound effect
 - 3 Normal - surround speakers are not used
 - 3 Wide - surround speakers are not used, centre speaker carries full frequency response

Press the joystick  to confirm.

- 10 Push to blue or green to select »Delay Time«. Push to yellow to confirm. Push to blue or green to select the delay time of the surround speakers (e.g. 20 ms for standard rooms, 30 ms for small rooms).
15 ms → 20 ms → 25 ms → 30 ms
Press the joystick  to confirm.
- 11 Push to blue or green to select »Auto Surround«. Push to yellow to confirm. Push to blue or green to select:
 - On - When receiving a Dolby Surround encoded programme, the TV automatically switches to Dolby Surround sound (depending on availability of service by broadcaster).
 - Off - normal
 Press the joystick  to confirm.
- 12 Press the MENU button  to restore the normal TV picture.

Joystick






Advanced TV operation



Adjusting the Picture and Sound

Although the picture and sound are adjusted at the factory, you can adjust them to suit your own taste.

- 1 Press  (for Picture) or  (for Sound)

or
Press MENU .

Push joystick  to blue or green to select  for Picture Control or  for Sound Control. Push to yellow to confirm. The menu PICTURE CONTROL or SOUND CONTROL appears.

- 2 Push to blue or green to select the desired item. Push to yellow to confirm.
- 3 Push to red or yellow to adjust the selected item. Press the joystick  to confirm. For the effect of each control, see the following tables.
- 4 Repeat steps 2 and 3 to adjust other items.
- 5 Press MENU  to restore the normal TV picture.

Picture Control

Item	Effect
Picture Mode	• Personal → Economy (energy saving setting) → Live → Sports → Movie → Game
Contrast	• Less ———|——— More
Brightness*	• Darker ———|——— Brighter
Colour*	• Less ———|——— More
Hue**	• Greenish ———|——— Reddish
Sharpness*	• Softer ———|——— Sharper
Reset	• Resets picture to the factory preset levels
AI	• Off: Normal On: Automatic optimization of contrast level according to TV signal
Noise Reduction	• Off: Normal On: Reduction of picture noise in case of weak signals
Digital Mode	• 1: Normal 2: LFR (Line Flicker Reduction) off

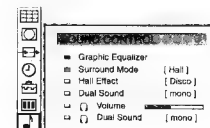
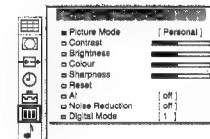
* Only if »Personal« or »Economy« is selected in »Picture Mode«.

** Available for NTSC colour system only.

Sound Control






Item	Effect
Graphic Equalizer	• See page 14 for details
Surround Mode	• Off: normal → Pro Logic → Hall
Hall Effect (only if Hall is on)	• Choice between different hall effects Church → Hall → Stadium → Disco
Dual Sound	• A: channel 1 or B: channel 2 Stereo → Mono
Headphones	• Less ———|——— More
Volume	• Less ———|——— More
Dual Sound	• A: channel 1 or B: channel 2 → PAP (if PAP is switched on, you can select the PAP sound for the headphones) → Stereo → Mono

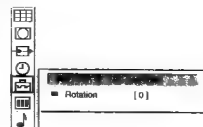
Joystick



Adjusting the Picture Rotation

If, due to the earth magnetism, the picture slants, you can use this function to readjust the picture.

- 1 Press MENU .
 - 2 Push joystick  to blue or green to select the symbol  on the menu screen. Push to yellow to confirm.
 - 3 Push to blue or green to select »Installation«. Push to yellow to confirm.
 - 4 Push to blue or green to select »Picture Rotation«. Push to yellow to confirm.
 - 5 Push to yellow. Push to blue or green to adjust the picture rotation. The adjusting range is - 4 to + 4. Press the joystick  to confirm.
- Press MENU  to restore the normal TV picture.



Advanced TV operation

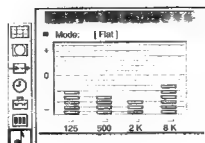
Using the Graphic Equalizer

Using this function you can individually adjust the sound by cutting and boosting selected frequencies. Also you can select between the following settings:

Flat \longrightarrow User \longrightarrow Vocal \longrightarrow Jazz \longrightarrow Rock \longrightarrow Pop





- 1 Press MENU **15**.
- 2 Push the joystick **17** to blue or green to select the symbol **18** on the menu screen. Push to yellow to confirm.
- 3 Push to blue or green to select »Graphic Equalizer«. Push to yellow to confirm.
- 4 Push to yellow. The colour of »Mode« changes. Push to blue or green to select the mode you want.
- 5 If you want to modify a mode, push repeatedly to yellow until the desired bar of a frequency band changes colour. Push to blue or green to change the level of a bar. In this way you can adjust all 4 graphic bars.
- 6 Press joystick **17** to store the adjustment.
- 7 Press MENU **15** to restore the normal TV picture.

Joystick







Presetting Dolby Pro Logic

To enjoy Dolby Surround encoded programmes, preset the setting »Surround Mode« in the menu »Sound Control« to »Pro Logic«. After the end of the broadcast make sure to return the setting to »Off«.

- 1 Press button  **15** on the Remote Commander.
- 2 Push joystick  to blue or green to select »Surround Mode«.
Push to yellow to confirm.
- 3 Push to green or blue to select »Pro Logic«. Press the joystick  to confirm.
- 4 Press MENU  to restore the normal TV picture.

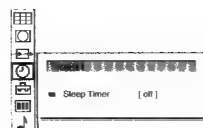
Using the Sleep Timer

This function enables you to select a time period after which the TV automatically switches into standby mode.

- 1 Press **MENU** .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen.
Push to yellow to confirm.
- 3 Push to yellow. Push to blue or green to select the time.
OFF → 10 min → 20 min 80 min → 90 min.
Press the joystick  to confirm.

! One minute before the TV switches into standby mode, a message is displayed on the screen.




- 4 Press **MENU** **15** to restore the normal TV picture.





Advanced TV Operation

Using »Multi PIP«



Using »Multi PIP« you can scan 12 successive TV channels on the screen (Programme Catching) or display 11 successive freeze pictures on the screen (Photo Mode).

- 1 Press **MENU** .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen.
Push to yellow to confirm.



a) Programme Catching

Push to blue or green to select »Programme Catching«. Press the joystick . Now a scan of 12 successive programmes (11 still pictures, 1 live picture where the cursor is positioned) is displayed on the screen starting from the programme tuned in. Pushing the joystick to blue, green, red or yellow you can move the cursor in all directions and update the still pictures. When selecting a programme position lower or higher than the 12 displayed ones the programme scanning starts again. Press MENU  to restore the normal TV picture.

Selecting a programme using Programme Catching:




Push the joystick  to blue, green, red or yellow to select the programme position you want, then press the joystick . Now the selected programme appears and you are back in the normal TV mode.

b) Photo mode

Push to blue or green to select »Photo mode«. Press the joystick . Now the main picture is displayed as a succession of 11 still pictures and a 12th picture, which is live. Push to blue or green to start the photo mode again. Press the joystick  to restore the normal TV picture.


Operating Screen Mode


Using Screen Mode you can change the aspect ratio of the screen for wide screen effects, operate PAP (picture and picture) or reproduce the main picture image by image (Strobe function).


- 1 Press **MENU** .
- 2 Push joystick  to blue or green to select the symbol  on the menu screen.
Push to yellow to confirm.
- 3 Push to blue or green to select »Screen Mode«. Push to yellow to confirm.
Push to blue or green to select one of the following modes:

- Smart - imitation of wide screen effect (16:9) for 4:3 broadcasts.
- Zoom - imitation of wide screen effect (16:9) for movies broadcast in cinemascope format.
- Wide - for 16:9 broadcasts
- 4:3 - conventional 4:3 picture
- AutoWide - automatic selection of the optimum screen ratio (e.g. 4:3 picture automatically changes to Smart mode, 16:9 picture changes to Zoom mode)

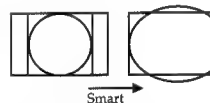
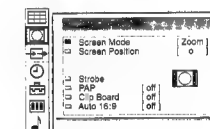
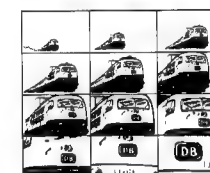
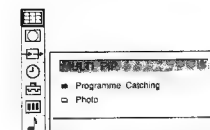
Press the joystick **12** to confirm the selection.

- 4 Only in Zoom Auto Wide Mode: Changing the Screen position**
In Zoom mode parts of the top and bottom of the picture are cut off. Using «Screen position» you can move the screen up- or downwards in order to see the cut-off parts (e.g. to read subtitles). Push to blue or green to select «Screen position». Push to yellow to confirm.
Push to blue or green to adjust the screen position (-10 to +10 or -5 to +5). Press the iovckit  to confirm.

- 5 Strobe Mode**
Push to blue or green to select »Strobe«. Push to yellow to confirm. The TV picture is now displayed image by image, creating a slow motion effect. Push to blue or green to select the speed of the motion. Press the joystick  to restore the normal TV picture.

- 6 PAP (picture and picture)
Push to blue or green to select »PAP«. Push to yellow to confirm. Push to blue or green to select:
1 – PAP screen in 8:9 format, 2 – PAP screen in 4:3 format, Off – PAP switched off
Press joystick  to confirm.

Joystick



Auto Wide

continued >>>>>>>>

Advanced TV operation

7 Clipboard

Push to blue or green to select »Clipboard«. Push to yellow to confirm. Push to blue or green to select »On« to freeze the PAP screen or »Off« for normal picture. Press joystick **10** to confirm.

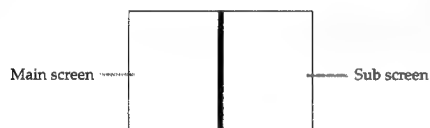
8 Auto 16:9

Push to blue or green to select »Auto 16:9«. Push to yellow to confirm.
Push to blue or green to select »On« for automatic selection of format or PAL plus
in case of PAL plus broadcast or »Off« for normal mode.
Press joystick **15** to confirm.




9 Press **MENU** to restore the normal TV picture.

PAP (Picture and Picture)

With PAP you can view two programmes simultaneously (e.g. two TV channels or a video source and a TV channel). The left screen is the main screen with the sound from the speakers, the right screen is the sub screen with the sound selectable via headphones.



Switching PAP on and off

Press    once to display the screens in format 8:9, twice to display the screens in format 4:3 and three times to switch PAP off.

Selecting a PAP source


Press **↑** **09**.
The symbol **↑** appears in the sub screen. Select the PAP source using **PROGR** **+/-** **09**,
the number buttons **09** or **↶** **09** (for a video source).

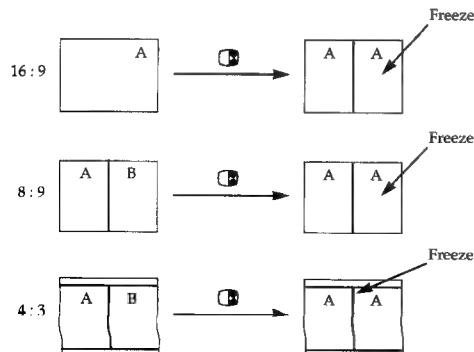


Swapping screens

Press once to swap the programmes of the main and sub screens.

Freezing the picture of the sub screen

Press  7 once to freeze the sub screen, twice to return to the normal live picture.







Teletext

Most TV channels broadcast information via teletext. The index page of the broadcaster (usually page 100) informs you about how to use the service. Make sure to use a TV channel with a strong signal, otherwise Teletext errors may occur.

Direct Access Function

Switching Teletext on and off

- 1 Select the TV channel which carries the teletext service you want to view.
- 2 Press  once for P&T (Picture and Teletext). The normal TV screen is displayed on the left, the Teletext screen on the right.
Press  twice to get Teletext only.
Press  three times for Mix mode. The normal TV screen and the Teletext screen are overlapped.
- 3 Press  to switch Teletext off.





TV-Screen	INDEX
	Sport 20
	News 11
	Weather 30

Selecting a Teletext page

Direct Page Selection

If you have made a mistake: Type in any three digits, then reenter the correct page number.

Page Catching

- 1 Select a teletext page with page numbers (e.g. index page).
- 2 Press the joystick . »Page Catching« is displayed at the top of the page. Push joystick  to blue or green to select the page you want. Press the joystick . The requested page is displayed after some seconds. Press  to resume normal teletext reception.

Joystick



Accessing the next or preceding page

Press   (Page +) or  (Page -).

Freezing a teletext subpage


Press . The symbol is displayed.
Press to resume normal teletext reception.

Revealing hidden information (e.g. for a quiz)

Press  . Press again to cancel.

Using Fasttext

(only available, if the TV station broadcasts Fastext signals)



With Fastext you can access pages with one key stroke. When Fastext is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of this menu correspond to the red, green, yellow and blue marks on the Remote Commander. Push the joystick  to the colour mark which corresponds to the colour-coded menu. The page is displayed after some seconds.

continued >>>>>>>

Teletext

Using the Teletext Menu

Your TV is provided with a menu-guided teletext system. When teletext is switched on, you can use the buttons for menu operation to operate the teletext menu. Select the teletext menu functions as follows:

- 1 Press **MENU** . The menu is superimposed on the teletext display.
- 2 Push the joystick  to blue or green to select the teletext function you want. Push to yellow to confirm the selection.





USER PAGES/PRESET USER PAGES

See page 19 for information about presetting and operating the user pages.

INDEX

INDEX
The index gives you an overview of the contents of the teletext you are using.

TOP/BOTTOM/FULL

For convenient reading of a teletext page you can enlarge the teletext page. After selecting the function, an information line "Top ↑ Bottom ↓ OK Full" is displayed. Push joystick  to green to enlarge the upper half, push to blue to enlarge the lower half. Press the joystick  to resume the normal display. Press   to resume normal teletext reception.

TEXT CLEAR






After selecting the function, you can watch a TV programme while waiting for a requested teletext page to be captured. When the page is available, the symbol changes colour. Press to view the requested page.

SUBTITLES



SUBTITLES
Check with your teletext service for information about subtitled TV programmes.
After selecting the function the subtitles are displayed.

TIME PAGE

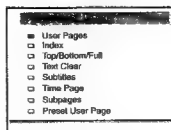
TIME PAGE
Check with your teletext service about the availability of time coded pages.
If available, you can call up a page (e.g. an alarm page) at a certain time.

- 1 Select TIME PAGE in the teletext menu.
Push joystick  to yellow. An information window is displayed. Push to blue or green to select »On«. Push to yellow.
- 2 Use the number buttons  to enter the three digits of the page you want (e.g. 301). Push to yellow after each digit.
- 3 Use the number buttons  to enter the four digits of the desired time (e.g 18-54). Push to yellow after each digit. Press joystick  to confirm. Press MENU . The time is displayed in the top left-hand corner of the screen.
At the requested time the page is displayed.

SUBPAGE

Using this function you can select a particular teletext page from several subpages (e.g. page 2 of 6 pages in total). After selecting the function an information line is displayed. Use the number buttons  to enter the four digits (e.g. enter 0002 for the second page of a sequence). To cancel the request: Push joystick  to red and then to yellow.

Joystick

**Teletext**






User Page Bank System

You can store up to 6 of your favourite teletext pages per Teletext service. In this way you have quick access to the pages you frequently use.








Jovstick



Storing pages

- 1 Press  to switch Teletext on. Press MENU .
- 2 Push joystick  to blue or green to select »Preset User Pages«.
Push to yellow to confirm.
- 3 Push to blue or green to select the bank (from A to E) you want.
Push to yellow to confirm.
- 4 Push to blue or green to select the three digits of your first favourite page.
Push to yellow after each digit. Push to yellow to confirm.
- 5 Repeat step 4 for the other 5 favourite pages. If you do not want to preset all 6 page numbers push to yellow without inserting any number. After finishing the presetting, press the joystick .
- 6 Push to blue or green to select »Allocate Bank«. Push to yellow to confirm.
- 7 Push to blue or green to select the programme position of the channel which carries the teletext service for which you have selected your favourite pages.
Push to yellow to confirm.
- 8 Push to blue or green to select the bank from step 3. Press the joystick  to confirm.
- 9 Repeat steps 3 to 8 for the other 4 banks available.

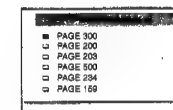
Displaying User Pages

- 1 Press **MENU** .
 - 2 Push joystick  to blue or green to select «User Pages». Push to yellow to confirm.
 - 3 Push to blue or green to select the page you want. Press the joystick .
- The page is displayed after some seconds.
- or
- 1 Press  .
 - 2 Push joystick  to blue or green to select the page you want. Press the joystick .
- The page is displayed after some seconds.

	BANK	P1	P2	F3	P4	P5
<input checked="" type="checkbox"/> A	300	255	455	234	200	
<input checked="" type="checkbox"/> B	200	120	301	303	550	
<input checked="" type="checkbox"/> C	100	220	300	444		
<input checked="" type="checkbox"/> D	128	321	255			
<input checked="" type="checkbox"/> E	400	238	240	118	127	

☐ Allocate Bank

PROG	LABEL	BANK	PROG	LABEL
00	VHS	-	04	MTV
01	BBC1	A	05	SKY
02	BBC2	C	06	ITV



continued >>>>>>>

Optional Equipment

Connecting Optional Equipment

You can connect a wide range of optional equipment to your TV. Refer to the illustrations on the back lap page of this Instruction Manual.

Symbol	Acceptable input signals	Available output signals
1	Normal audio/video and RGB	Audio/video from TV tuner
2/3 2	Normal audio/video and S video	Audio/video from selected source
3, 3	Normal audio/video and S video	No output
	No inputs	Audio from selected source

About S video input

Video signals may be separated into Y (luminance) and C (chrominance) signals. Separating the two signals prevents interference and thus improves the picture quality.

Tips:

- If the picture or sound is distorted, move the VCR away from the TV.
- When connecting a monaural VCR, connect only the white jack to both the TV and VCR.

Selecting Input and Output Signals

a) Direct Access Buttons

Selecting the Input

Press **1** repeatedly to select one of the following input modes:

Symbol on the screen	Input signals
1	Audio/video through Euro AV connector J
	RGB through Euro AV connector J
2	Audio/video through Euro AV connector L
3 2	S video through Euro AV connector L
3	Audio/video through the phono jacks C
3 3	S video through the 4 pin DIN B

Press **0** to restore the normal TV picture.

Selecting the Output from Euro AV connector **2/3 2 L**

Press **2/3 2 L** repeatedly to select one of the following output sources for the connector **2/3 2 L**:

Symbol on the screen	2/3 2 L connector output signal
1	Audio/video from Euro AV connector J
2	Audio/video from Euro AV connector L
2	Audio/video from Euro AV connector L
3	Audio/video from the phono jacks C
3	Audio/video from the 4 pin DIN B
TV	Audio/video from the aerial terminal T

Optional Equipment

b) Using the Menu »Video Connection«

1 Press MENU **1**.

2 Push joystick **1** to blue or green to select the symbol **2/3 2 L** on the menu screen. Push to yellow to confirm.

3 Push to blue or green to select »TV screen« (input source for TV-screen), PAP (source for PAP sub screen), or »Output« (output source for **2/3 2 L**). Push to yellow to confirm.

You can select between the following sources:

• TV: TV-tuner • YC: S video signal • AV: Audio/Video • Sub: 2nd TV-tuner

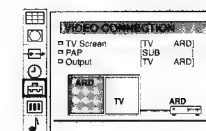
TV screen: TV, AV1, RGB, AV2, YC2, AV3, YC3

PAP: Sub, AV1, AV2, YC2, AV3, YC3

Output: TV, AV1, AV2, YC2, AV3, YC3

4 Push to blue or green to select the desired source. Press joystick **1** to store.

5 Press MENU **1** to restore the normal TV picture.



Joystick



Remote Control of other Sony Equipment

Using the buttons **2** on the Remote Commander you can control other Sony equipment.

1 Set the selector VTR 1 2 3 MDP according to the equipment you want to control.

VTR 1: Beta VCR

VTR 2: 8mm VCR

VTR 3: VHS VCR

MDP: Video Disk Player

2 Use the buttons **2** on the Remote Commander to operate the equipment.

Tips

- If your video equipment has a COMMAND MODE selector, set this selector to the same position as the VTR 1 2 3 MDP selector on the TV Remote Commander.
- If the equipment does not have a certain function, the corresponding button on the Remote Commander does not work.

Additional Information

Troubleshooting

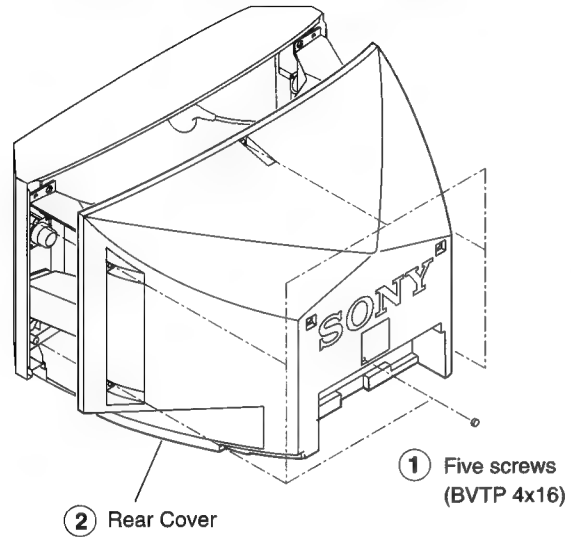
Here are some simple solutions to problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	<ul style="list-style-type: none"> • Plug the TV in. • Press 1 on the TV. (If 1 indicator 1 is on, press 0 or a programme number 2 on the Remote Commander.) • Check the aerial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds and then turn it on again using 0.
Poor or no picture (screen is dark), but good sound	<ul style="list-style-type: none"> • Press 2 to enter the PICTURE CONTROL menu and adjust »Brightness«, »Contrast« and »Colour«.
Poor picture quality when watching an RGB video source	<ul style="list-style-type: none"> • Press 2 repeatedly to select 2.
Good picture but poor or no sound	<ul style="list-style-type: none"> • Press +. • If 1 is displayed on the screen, press 1. • Check the connections of the loudspeakers.
No colour for colour programmes	<ul style="list-style-type: none"> • Press 2 to enter the PICTURE CONTROL menu, select RESET, then press joystick 1.
Remote Commander does not function.	<ul style="list-style-type: none"> • Replace batteries.

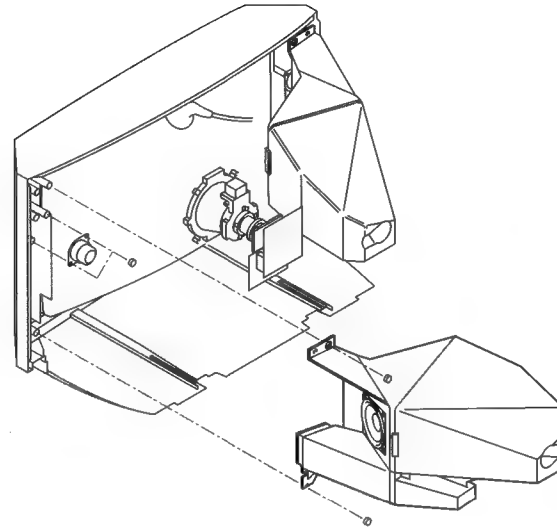
If you continue to have problems, have your TV serviced by qualified personnel. Never open the casing yourself.

SECTION 2 DISASSEMBLY

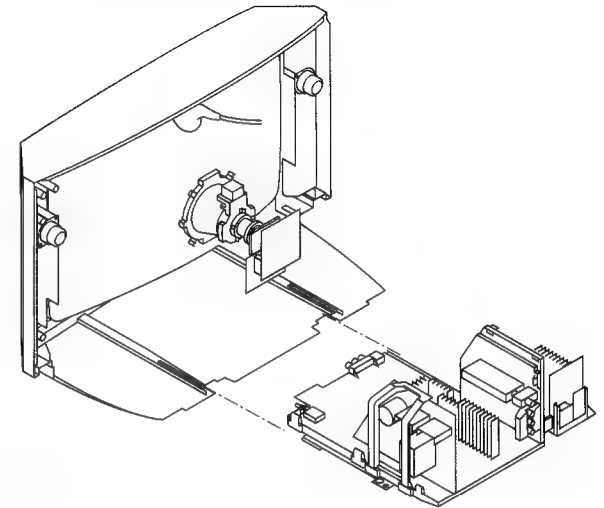
2-1. REAR COVER REMOVAL



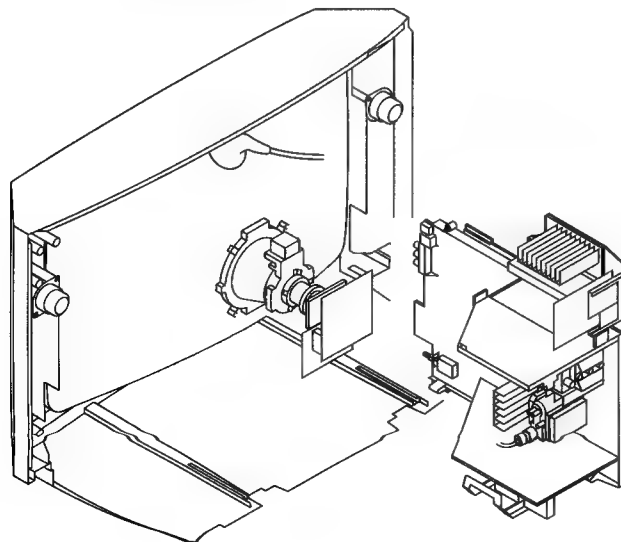
2-2. SPEAKER REMOVAL



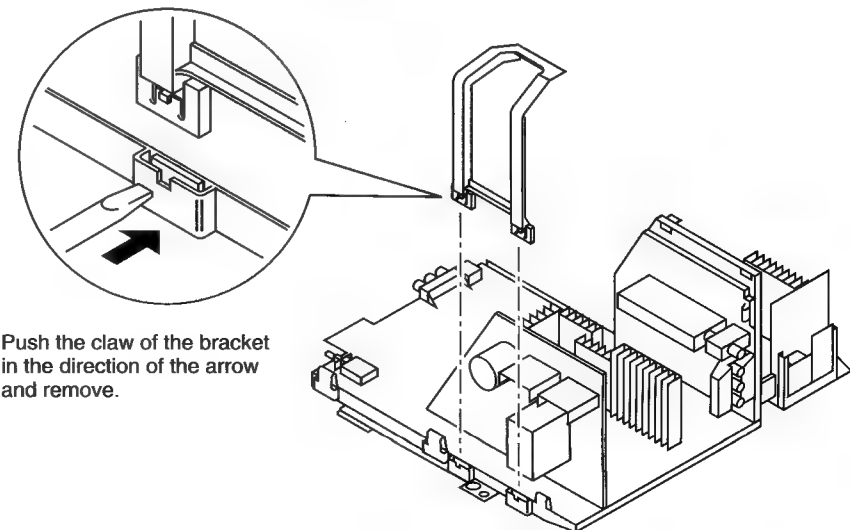
2-3. CHASSIS ASSY REMOVAL



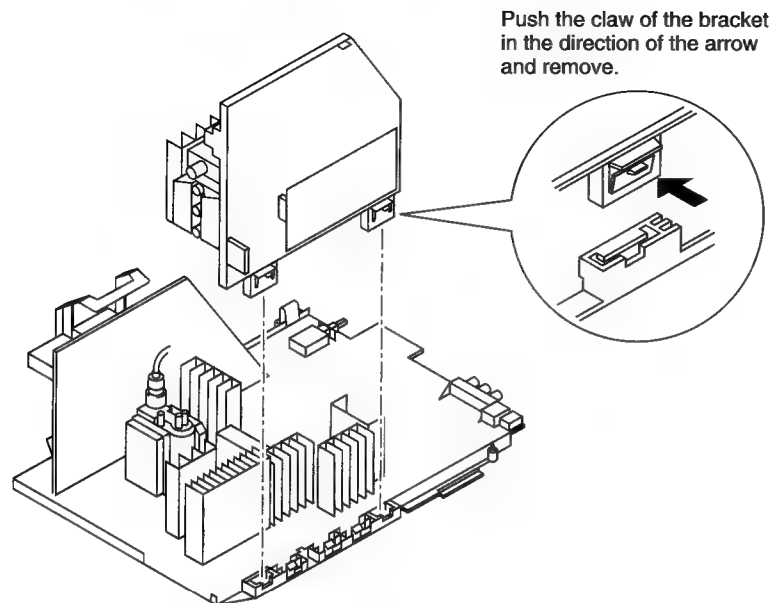
2-4. SERVICE POSITION



2-5. G BOARD REMOVAL



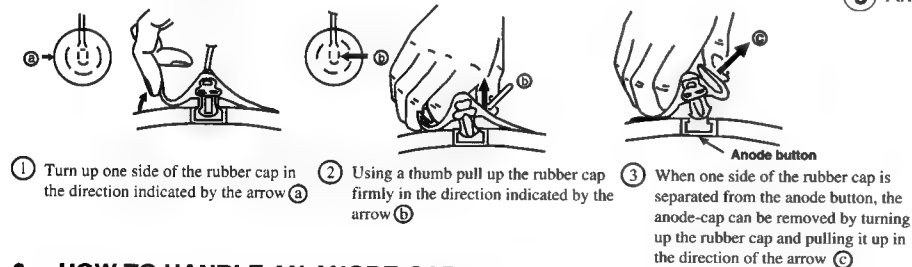
2-6. A BOARD REMOVAL



• REMOVAL OF ANODE-CAP

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

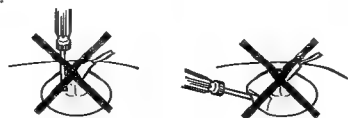
• REMOVING PROCEDURES.



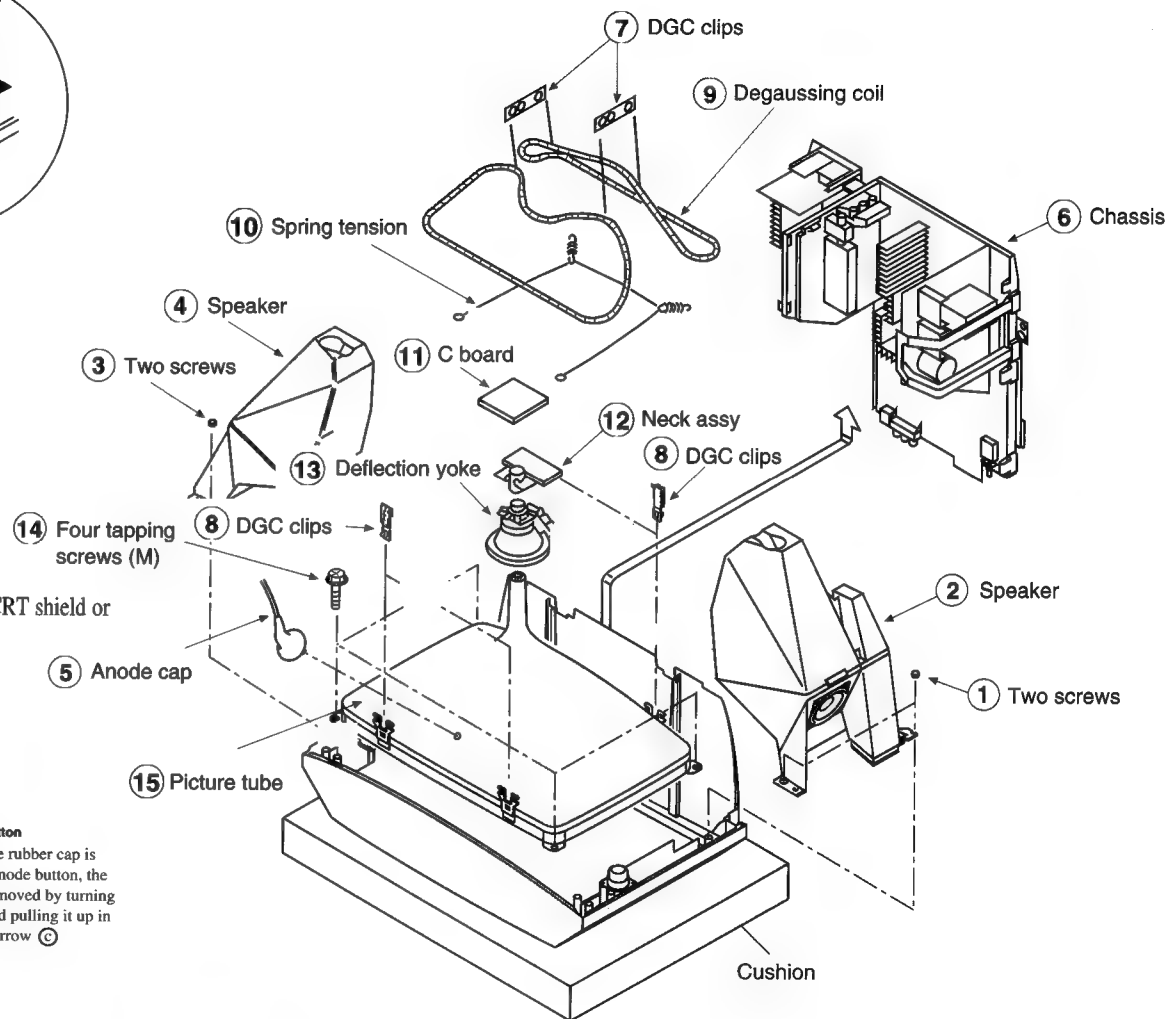
• HOW TO HANDLE AN ANODE-CAP

- ① Don't damage the surface of anode-cap with sharp shaped material !
- ② Don't press the rubber hardy not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built into the rubber.
- ③ Don't turn the foot of rubber over hardly !

The shatter-hook terminal will stick out or damage the rubber.



2-7. PICUTRE TUBE REMOVAL



REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET BOTTOM PLATES.

(1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the D Board printed circuit, the bottom plates fitted to the main chassis bracket require to be removed. This is performed by cutting the gates with a sharp wire cutter at the locations shown and indicated by arrows.

Note : There are 5 plates fitted to the main bracket and secured by 4 or 6 gates. Only remove the necessary plate to gain access to the circuit board.

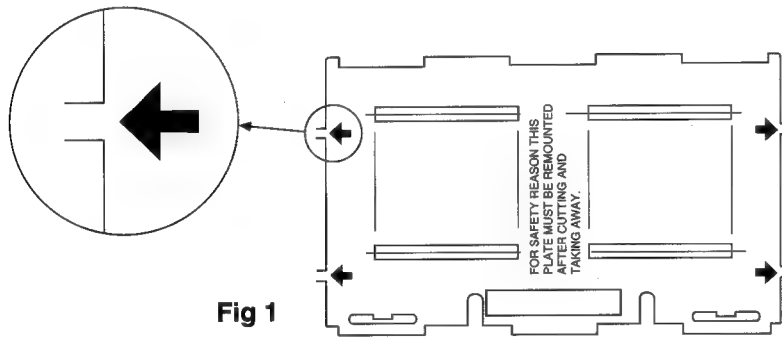
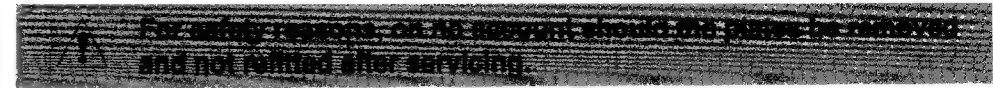


Fig 1



(2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.

The plates are identified by markings A-B-C-D-E on their top side.

1. Identify the plate by locating its marking.
2. Turn the plate over noting where the marking is located.
3. Locate the corresponding marking indicated on the main chassis bracket. See Fig 2.
4. Refit the plate as indicated in Fig 3 with the markings located next to each other.

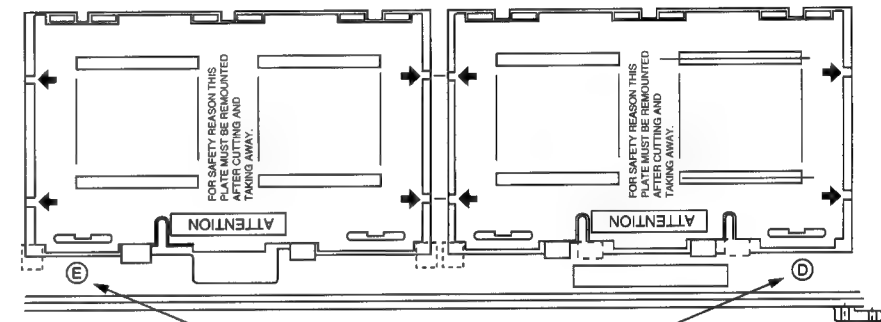


Fig 2

INDEX MARKING
AT BRACKET FRAME

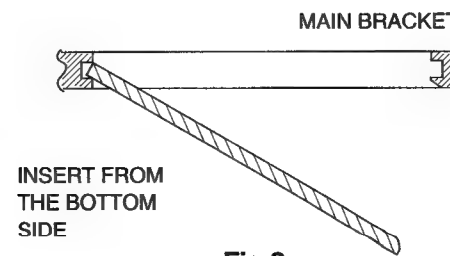


Fig 3

In the event of the plates requiring to be removed at a later stage, this can be achieved by inserting a screwdriver in the snap-recess indicated as in Fig 4 and lifting out.

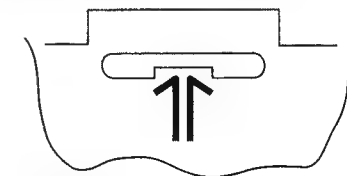


Fig 4

SECTION 3

SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustment with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches as follows.

Contrast normal
 Brightness normal

- Carry out the following adjustments in this order:

- 3-1. Beam landing
- 3-2. Convergence
- 3-3. Focus
- 3-4. White balance

Note: Testing equipment required.

1. Color bar/pattern generator
2. Degausser
3. Vector scope

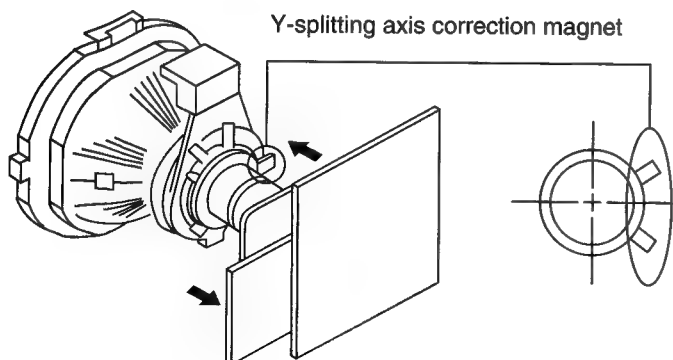
3-1. BEAM LANDING

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

(1) Adjustment of Correction Magnet for Y-Splitting Axis

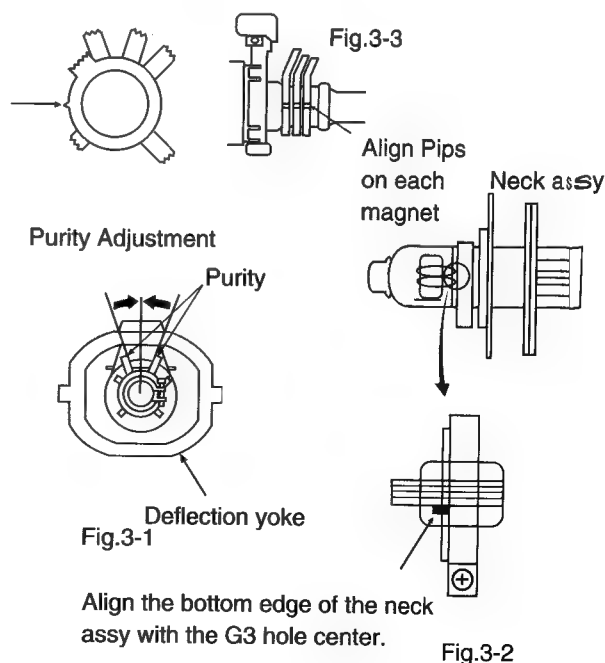
1. Input a crosshatch signal from the pattern generator.
2. Picture control is minimum and brightness control is still normal.
3. Position the neck assy as shown in Fig. 3-2.
4. Move the deflection yoke forward to touch the CRT and it stands up rightly.
5. Adjust the upper pin and the lower pin symmetrically by opening or closing the Y-splitting axis correction magnets on the neck assy.
6. Return the deflection yoke to its original position.



(2) Landing

Note: Before carrying out the following adjustments adjust the magnets as indicated below (See Fig.3-3).

1. Input an all-white signal from the pattern generator. Maximize the picture setting and adjust the brightness setting.
2. Rough-adjust the focus and horizontal convergence.
3. Loosen the deflection yoke screws, align the purity adjustment knob to the central position. (See Fig. 3-1)
4. Switch from the all-white pattern to an all-green pattern.
5. Move the deflection yoke backwards and adjust with the purity magnet so that the green is at the center and it aligns symmetrically. (See Fig. 3-4)
6. Move the deflection yoke forward and adjust so that entire screen becomes green.
7. Switch the raster signal to red, then to blue and verify the landing condition.
8. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screw.
9. If the beam does not land correctly in all the corners, use magnets to correct it. (See Fig. 3-5)



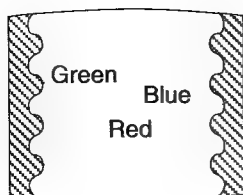


Fig.3-4

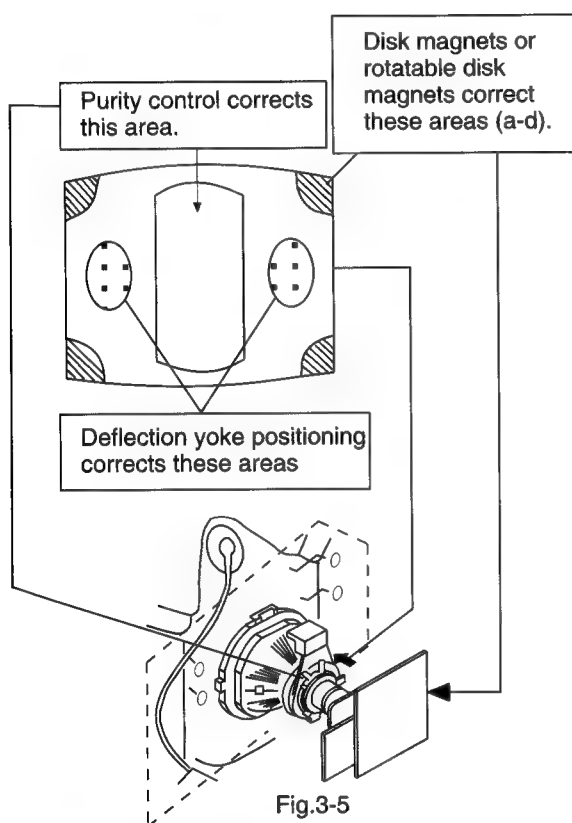
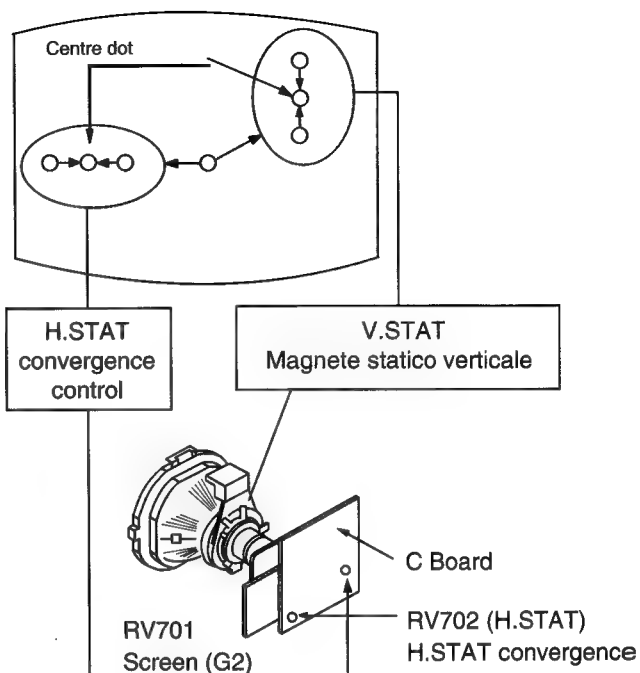


Fig.3-5

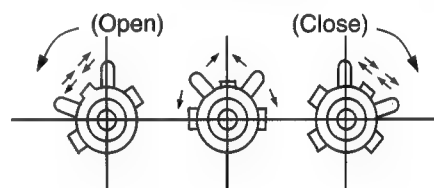
3-2. CONVERGENCE

(1) Screen center convergence (Static convergence)

1. Input a dot signal from the pattern generator. Normalize the picture setting.
2. (Moving horizontally), adjust the H. STAT control so that the horizontal red, green and blue dots coincide at the center of screen.
3. (Moving vertically), adjust the V. STAT magnet so that the vertical red, green and blue points coincide at the center of screen.

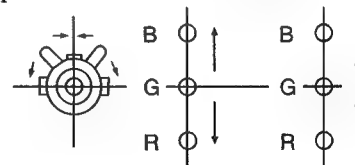


- If the horizontal dots are unable to coincide with the variable range of the H. STAT convergence, adjust together with the V. STAT convergence while tracking. (Adjust the convergence by tilting the V. STAT convergence or by opening or closing the V. STAT convergence.)

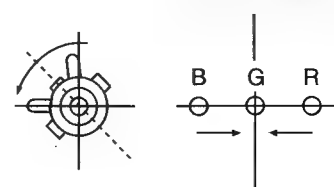


4. Movement of the red, green and blue dots by tilting the V. STAT magnet and by opening or closing the V. STAT magnet.

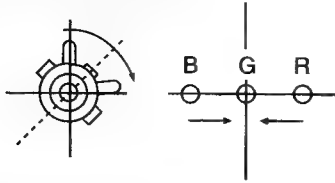
- ① By opening or closing the V. STAT magnet, the red, green and blue points move as shown below



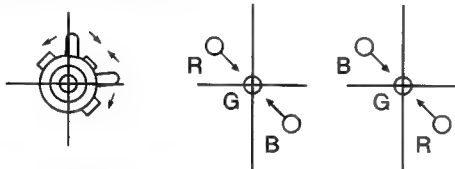
- ② By rotating the V. STAT magnet counterclockwise, the red, green and blue dots move as shown below.



- ③ By rotating the V.STAT magnet clockwise, the red, green and blue dots move as shown below.



- ④ By opening or closing the V.STAT magnet, the red, green and blue dots move as shown below.

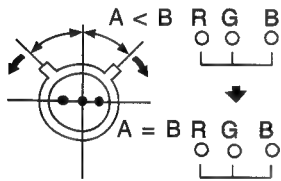


- If the blue dot does not coincide with the red and green points, correct the points by using the BMC (Hexapole) magnet.

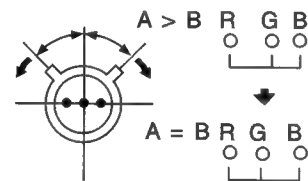
- ⑤ Correction for HMC (horizontal mis-convergence) and VMC (vertical mis-convergence) by using the BMC (Hexapole) magnet.

- ① HMC correction by BMC (Hexapole) magnet and movement of the electronic beam.

HMC correction(A)

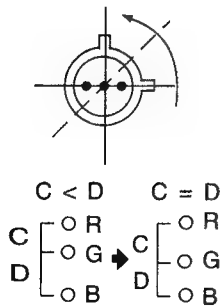


HMC correction(B)

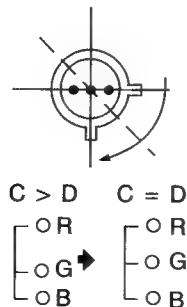


- ② VMC correction by BMC (Hexapole) magnet and movement of the electronic beam.

VMC correction(A)



VMC correction(B)



Layout of each control

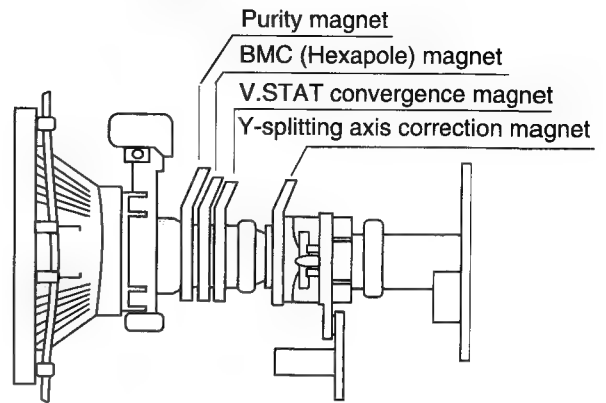
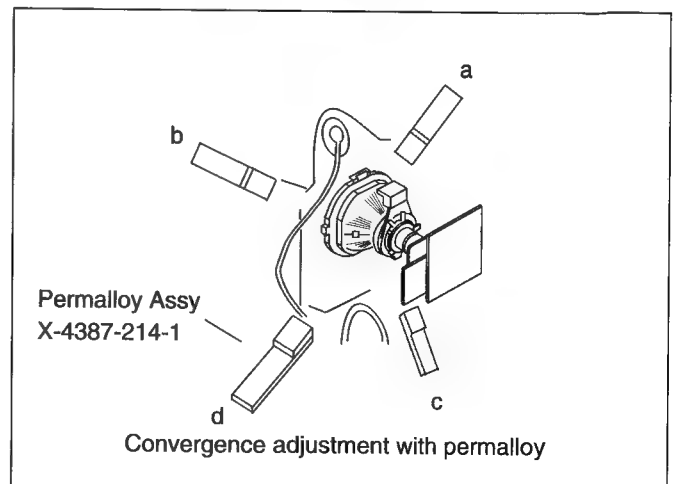
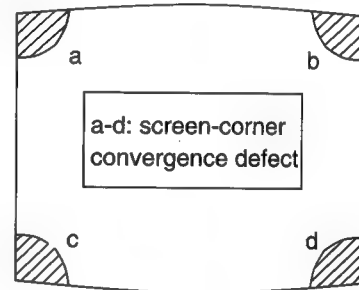


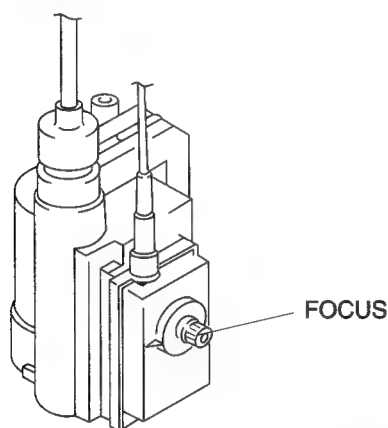
Fig.3-5

2. If you are unable to adjust the corner convergence properly, correct them with the use of permalloys.



3-3. Focus

1. Receive a television broadcast signal.
2. Normalize the picture setting.
3. Adjust the focus control on the flyback transformer for the best focus at the center of the screen.
Bring only the center area of the screen into focus, the magenta-ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.



3-4. Screen (G2), White balance (Adjustment in the service mode with remote commander)

G2 adjustment (RV702)

1. Input a dot signal from the pattern generator.
2. Set the Picture, Brightness and Colour to minimum.
3. Apply 170V DC from an external power supply to the R, G and B cathodes of the CRT.
4. Whilst watching the picture, adjust the G2 control RV701 [SCREEN] on the C board to the point just before the return lines disappear.

White balance adjustment

1. Receive an all-white signal.
2. Enter into the Service Mode by pressing 'TEST', 'TEST' and 'MENU' on the Service Commander.
3. Select 'VIDEO PROC.' from the on screen menu display and press OK.
4. The 'VIDEO PROC TDA4780' menu will appear on the screen.

Video Proc. TDA4780

Item No	Adjustment item	Data Amount
1	BRT	USER CONTROL
2	COL	USER CONTROL
3	PIC	USER CONTROL
4	HUE	USER CONTROL
5	R GAIN	31
6	G GAIN	Adj
7	B GAIN	Adj
8	R LVL REF	31
9	G LVL REF	Adj
10	B LVL REF	Adj
11	PEAK DRV LIMIT	63
12	GAMMA	31
13	SCP ON = 3LEV OFF = 2LEV	ON
14	DELAY	OFF

5. Set picture to MAX.
6. Set the 'R GAIN' to 25.
7. Adjust the 'G GAIN' and 'B GAIN' so that the white balance becomes optimum.
8. Press the OK button to write the data for each item.
9. Set picture to MIN.
10. Set the 'R LVL REF' to 31.
11. Adjust 'G LVL REF', and 'B LVL REF' with the left and right buttons so that the white balance becomes optimum.
12. Press the OK button to write the data for each item.

SECTION 4

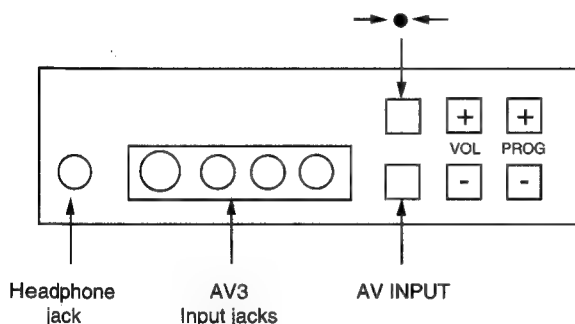
CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustment to this model can be performed with the supplied remote commander, RM-862.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch of the set while pressing the PROG + (plus) and PROG - (minus) buttons on the front panel.



2. "TT" will appear on the upper right corner of the screen.
3. Press "MENU" on the commander to get the service menu on screen.

DEVICES

Init TV	
Pip, Lumisponder & Autoside	
Sub Adjust	
Video Proc	TDA4780
Col Dec Main	TDA9144
Deflect. Cont	SDA9361
Col Dec Sub	TDA9143
Feature Box	S87C654
AI	TDA9170
DA	SDA9280
Single PIP	SDA9288
Sound	
Line23 det	

4. Push the joystick up (green) or down (blue) on the remote commander to select the adjustment item.
5. Press the center button to proceed to the next menu.
6. If the adjustment item is 'Video Proc.', push the down button to move to 'Video Proc.'.
7. The Menu as indicated in Fig 4-3 will appear on the screen.
8. Move the joystick up or down to move to the adjustment item and press the center (OK) button.
9. Change the data in order to comply with each standard.

Item No	Adjustment item	Data Amount
1	BRT	USER CONTROL
2	COL	USER CONTROL
3	PIC	USER CONTROL
4	HUE	USER CONTROL
5	R GAIN	31
6	G GAIN	Adj
7	B GAIN	Adj
8	R LVL REF	31
9	G LVL REF	Adj
10	B LVL REF	Adj
11	PEAK DRV LIMIT	63
12	GAMMA	31
13	SCP ON = 3LEV OFF = 2LEV	ON
14	DELAY	OFF
15	DATA BUFF	OFF
16	NTSC MATRIX	OFF
17	HDTV	OFF
18	FSBL	OFF
19	AUTO CUT OFF	ON
20	FSW 2 DIS	OFF
21	FSW 2	OFF
22	FSW 1 DIS	OFF
23	FSW 1	OFF
24	ADAPT BLACK	OFF
25	Y HIGH 1V	OFF
26	MOD2	OFF
27	BLUE STRETCH	OFF
28	VM OUT	OFF
29	PEAK DRV ABS	ON
30	TIME CNST PEAK LIMIT	OFF

Fig. 4-3

SDA9361 (VIDEO PROC.)

Item No	Adjustment item	Data Amount
1	HDE	ON
2	VR	0
3	RABL	ON
4	BLK DIS	OFF
5	2FH 2*LINE FRQ	ON
6	STANDBY MODE	OFF
7	VERTICAL	ON
8	BSE BLK SELECT	OFF
9	SSE START SCAN	OFF
10	SRSE START RED SCAN	OFF
11	GBE GUARD BAND	OFF
12	STE SCAN TIME TABLE	OFF
13	NSA SELF ADAPTION	ON
14	V SHIFT	ADJ
15	V SIZE	ADJ
16	V LIN	ADJ
17	V S-COR	ADJ
18	V EHT COMP	25" = 78 29" = 100 28" = 36 32" =
19	H SIZE	ADJ
20	PIN PHASE	ADJ
21	PIN AMP	ADJ
22	UP COR PIN	ADJ
23	LOW COR PIN	ADJ
24	H EHT COMP	25" = 78 29" = 100 28" = 36 32" =
25	H SHIFT	ADJ
26	V ANGLE	ADJ
27	V BOW	ADJ
28	PWM START	0

Item No	Adjustment item	Data Amount
29	D/A	0
30	V BLK TIME	0
31	H BLK TIME	0
32	STAR V SCAN	0
33	H BLK PHASE	0
34	V SCAN WIDTH 0	0
35	V SCAN WIDTH 1	0
36	GUARD BAND	0
37	START RED SCAN	0
38	NUMBER FIELDS	1
39	NI NON INTERLACE	OFF
40	NR VSYNC NOISE RED	ON
41	SCC WITH VBL	ON
42	MIN LINES/FIELD	0
43	MAX LINES/FIELD	0
44	AFC EHT COMP	0
45	PLL FREQ	6
46	VCR	ON
47	GEN MOD	OFF
48	HSWID	ON
49	INT H PHASE	239
50	PWM WIDTH	0
51	NOISY VCR	OFF
52	KILLZIP	OFF
53	TC3RD	OFF
54	BANDGAP 4 OFF	OFF
55	BANDGAP OFF	OFF
56	BANDGAP	0

TDA4780 (VIDEO PROC.)

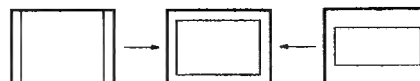
Item No	Adjustment item	Data Amount
1	BRT	USER CONTROL
2	COL	USER CONTROL
3	PIC	USER CONTROL
4	HUE	USER CONTROL
5	R GAIN	25
6	G GAIN	Adj
7	B GAIN	Adj
8	R LVL REF	31
9	G LVL REF	Adj
10	B LVL REF	Adj
11	PEAK DRV LIMIT	0
12	GAMMA	31
13	SCP ON = 3LEV OFF = 2LEV	ON
14	DELAY	OFF
15	DATA BUFF	OFF
16	NTSC MATRIX	OFF
17	HDTV	OFF
18	FSBL	OFF
19	AUTO CUT OFF	ON
20	FSW 2 DIS	OFF
21	FSW 2	OFF
22	FSW 1	OFF
23	FSW 1	OFF
24	ADAPT BLACK	OFF
25	Y HIGH 1V	OFF
26	MOD2	OFF
27	BLUE STRETCH	OFF
28	VM OUT	OFF
29	PEAK DRV ABS	ON
30	TIME CNST PEAK LIMIT	OFF

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the service mode and select 'Deflect cont.'. The 'Deflect cont. SDA9361' adjustment menu will be displayed.
2. Select and adjust each item in order to get an optimum image.

Item No	Adjustment item	Data Amount
1	HDE	ON
2	VR	0
3	RABL	ON
4	BLK DIS	OFF
5	2FH 2*LINE FRQ	ON
6	STANDBY MODE	OFF
7	VERTICAL	ON
8	BSE BLK SELECT	OFF
9	SSE START SCAN	OFF
10	SRSE START RED SCAN	OFF
11	GBE GUARD BAND	OFF
12	STE SCAN TIME TABLE	OFF
13	NSA SELF ADAPTION	ON
14	V SHIFT	ADJ
15	V SIZE	ADJ
16	V LIN	ADJ
17	V S-COR	ADJ
18	V EHT COMP	25" = 78 29" = 100 28" = 36
19	H SIZE	ADJ
20	PIN PHASE	ADJ
21	PIN AMP	ADJ
22	UP COR PIN	ADJ
23	LOW COR PIN	ADJ
24	H EHT COMP	25" = 78 29" = 100 28" = 36
25	H SHIFT	ADJ
26	V ANGLE	ADJ
27	V BOW	ADJ
28	PWM START	0

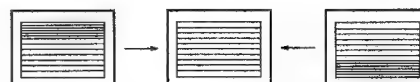
V SIZE



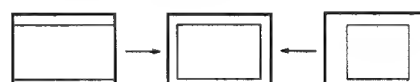
V POS



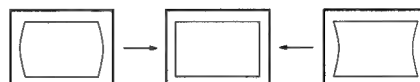
V LIN



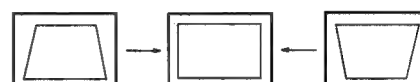
H SIZE



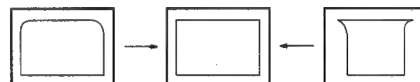
H PIN CUSH



H TILT



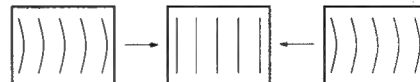
H UP COR



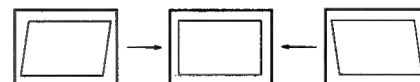
H LOWER COR



AFC V BOW



AFC V ANGLE



H POS



4-2. VOLUME ELECTRICAL ADJUSTMENTS

Sub Brightness Adjustment

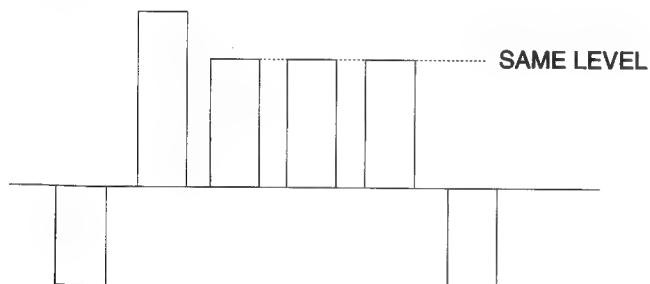
1. Enter Service Mode (Device Menu).
2. Select 'SUB ADJUST MENU'.

Sub adjustment
Sub Picture
Sub Color
Sub Brightness
4/3 Center
PAP H-Center
PAP HWE-Offset

3. Adjust the value according to the following advice.

Sub Color Adjustment

1. Input a PAL color bar signal.
2. Connect an oscilloscope to CN3703.
3. Enter into 'SERVICE MODE'.
4. Choose 'SUB ADJUST'.
5. Enter into Sub Color mode.
6. Adjust data so that the right sides of the waveforms are of equal height.



4-3. TEST MODE 2:

Is available by pressing the Test button twice, OSD "TT" appears. The functions described below are available by pressing the two numbers. To release Test Mode 2, press 0, 10, 20 ... twice or switch the TV into Standby Mode. Pressing the two Local Control buttons (+ and -) during Power ON will also switch into "TT" mode.

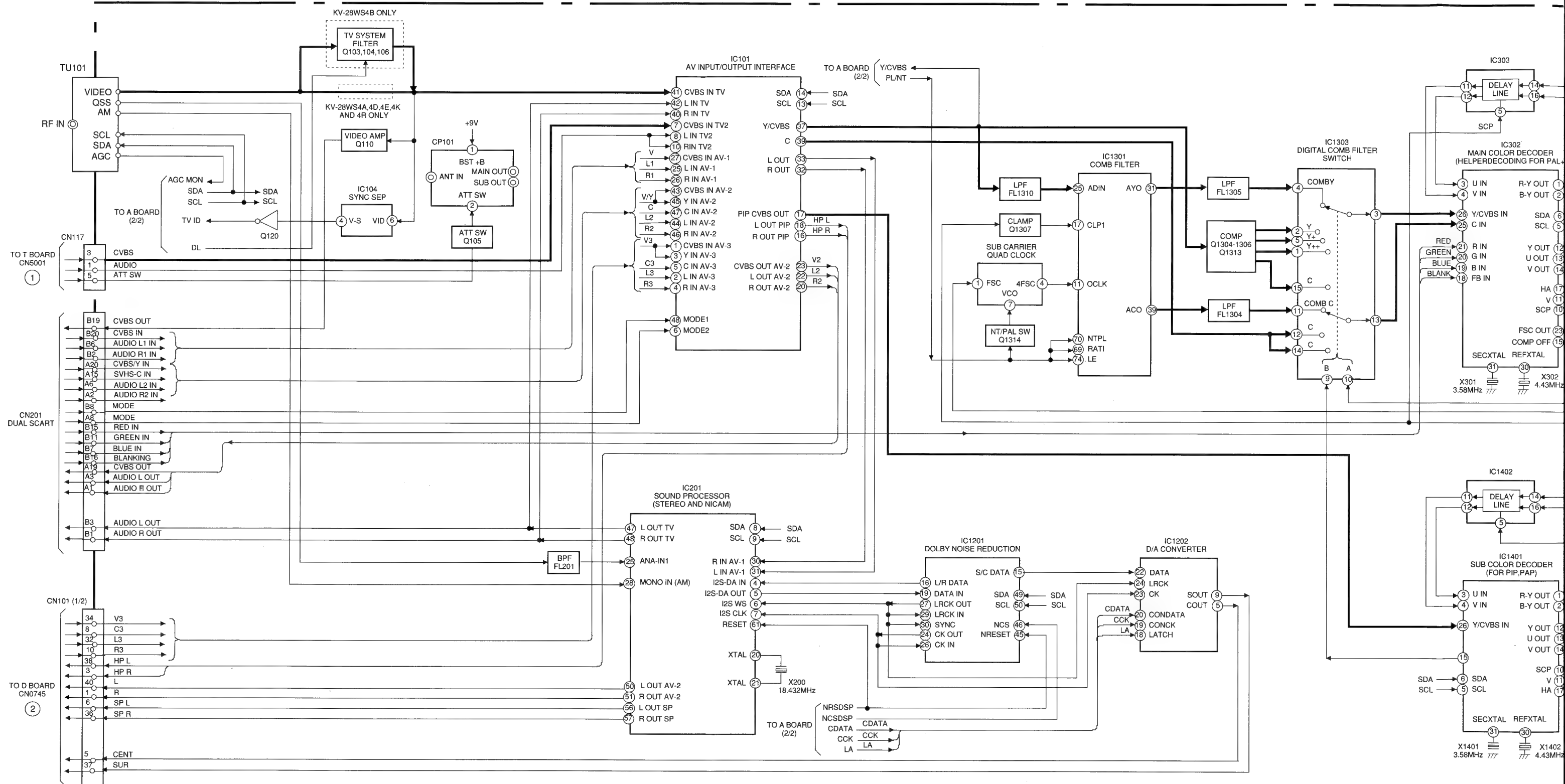
In TT mode, it is possible to remove the Menu from the screen by pressing the Speaker Off button once. Pressing the Speaker OFF button a second time will cause the menu to reappear. The Function is kept even when the menu is not displayed!!

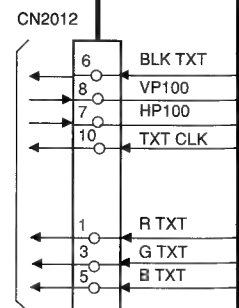
00	Switch back to normal mode - TT mode off
01	Switch service menu on
02	Direct access to Noise reduction
03	Set volume to 30%
04	Service menu in "Service Mode"
05	Service menu in "Production Mode"
06	Set Volume to 80%
07	Aging Mode
08	Shipping Condition
09	Language Reset
10	The TT number will be deleted
11	Direct access to Balance
12	Direct access to Hue
13	Display of TV set configuration
14	Production Info Display
15	Read Analog from ROM
16	Save Analog F in NVM
17	This function presets the Labels for the AV sources: AV1, RGB, AV2, YC2, AV3, YC3, AV4, YC4.
18	No function
19	No function
20	See TT10
21	Picture Rotation automatic function: (-4) -> (+4) -> 0
22	Error Monitor Display
23	Direct access to Sub Brightness Adjustment.
24	Direct access to Sub Colour.
25	Status Menu Display
26	Text Character selection (Char set 06 -> West Europe)
27	Text Character selection (Char set 38 -> East Europe)
28	Text Character selection (Char set 40 -> West Europe) US English
29	Text Character selection (Char set 55 -> West Europe) Turkish
30	See TT10

31	no function
32	no function
33	no function
34	no function
35	no function
36	no function
37	no function
38	Screen Position
39	Reset Programme Table
40	See TT10
41	Picture Min
42	no function
43	no function
44	no function
45	Set NVM to Protect mode
46	IR Channel Presetting Mode. The channel presetting can be done by a Special transmitter. Sequence: TT46 -> --PR Number select display appears Select Prog. No. from where the channel shall be stored. --> Now TV is waiting for IR sequence <-- --> If no IR transmission starts TT46 is released after 20 secs <--! Note: when TT46 is active, any transmission will be interpreted as PROG data !
47	no function
48	no function
49	New Initialize
50	See TT10
51	Strobe mode is activated.
52	no function
53	no function
54	Direct access to Velocity Modulation VM (Production use)
55	Slicer High
56	Slicer No
57	Megatext Service Menu on
58	MTX Small Framing Code Window

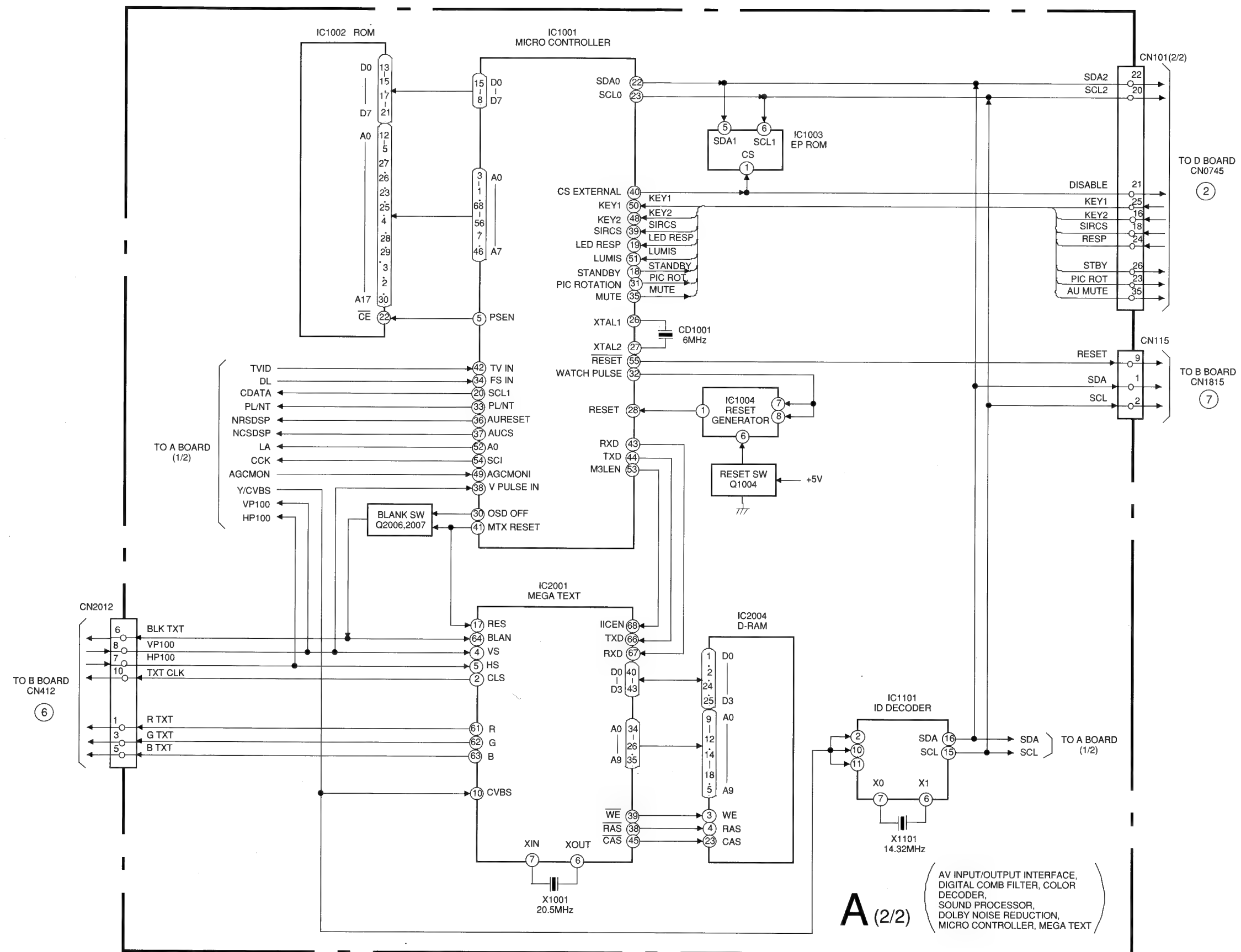
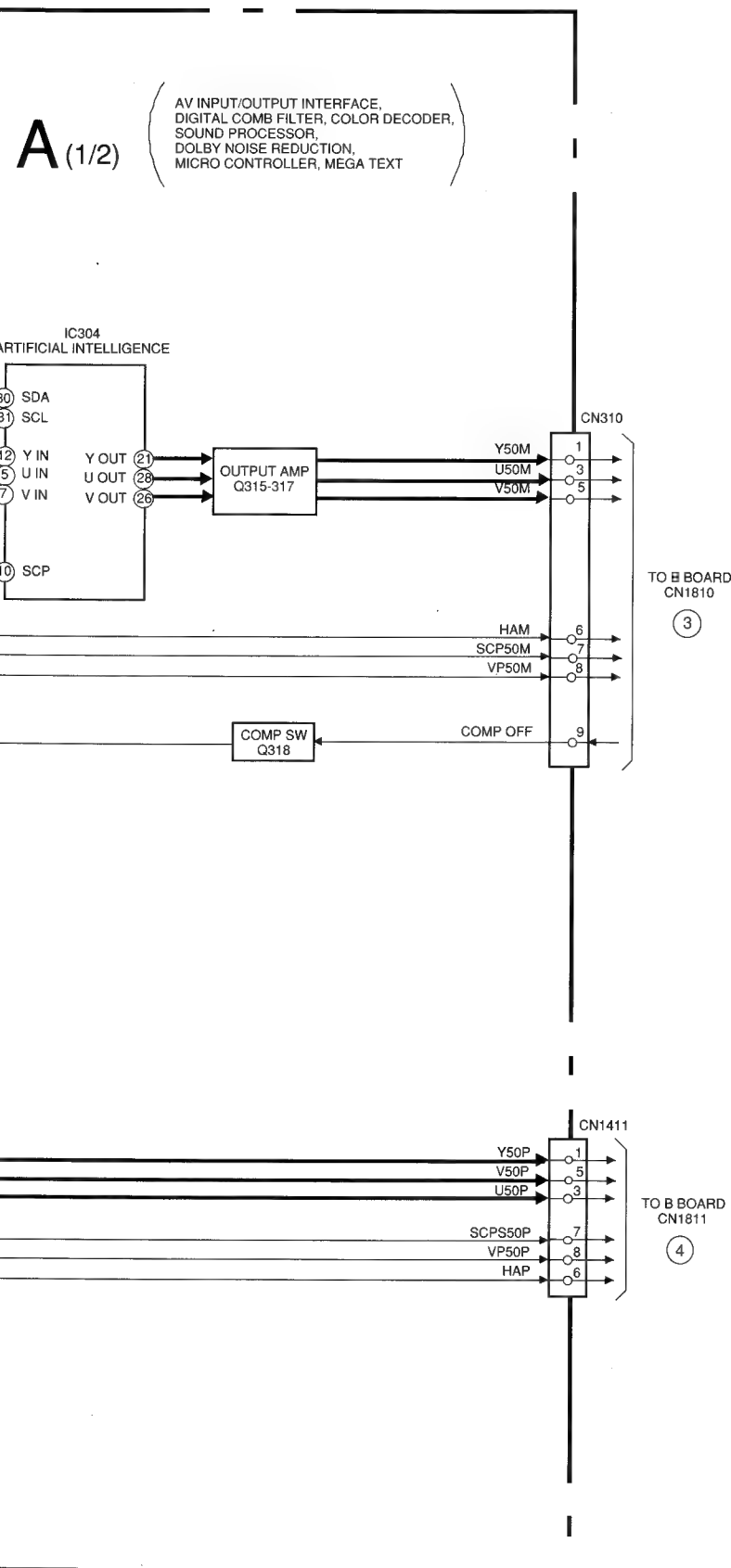
59	MTX Wide Framing Code Window
60	See TT10
61	no function
62	no function
63	no function
64	Reset all IIC Slave commands (Production use)
65	Reset stored error codes in NVM
66	Feature box and Pal Plus
67	no function
68	Ignore Errors - on
69	Ignore errors - off
70	See TT10
71	no function
72	no function
73	Megatext RGB textlevel one step decreased.
74	Megatext RGB textlevel one step decreased (max 1 steps down starting from E0h) (Production use)
75	no function
76	CDA9360
77	SDA9280
78	PIP
79	no function
80	See TT10
81	S87C654 Default data setting
82	TDA9170 Default data setting
83	SAA 7185WP Default data setting
84	TDA4780 Default data setting
85	TDA9144 Default data setting
86	TDA9143 Default data setting
87	SDA9288 Default data setting
88	Char set Russian
89	Char set Russian (esc)
90	See TT10

BLOCK DIAGRAM (1)

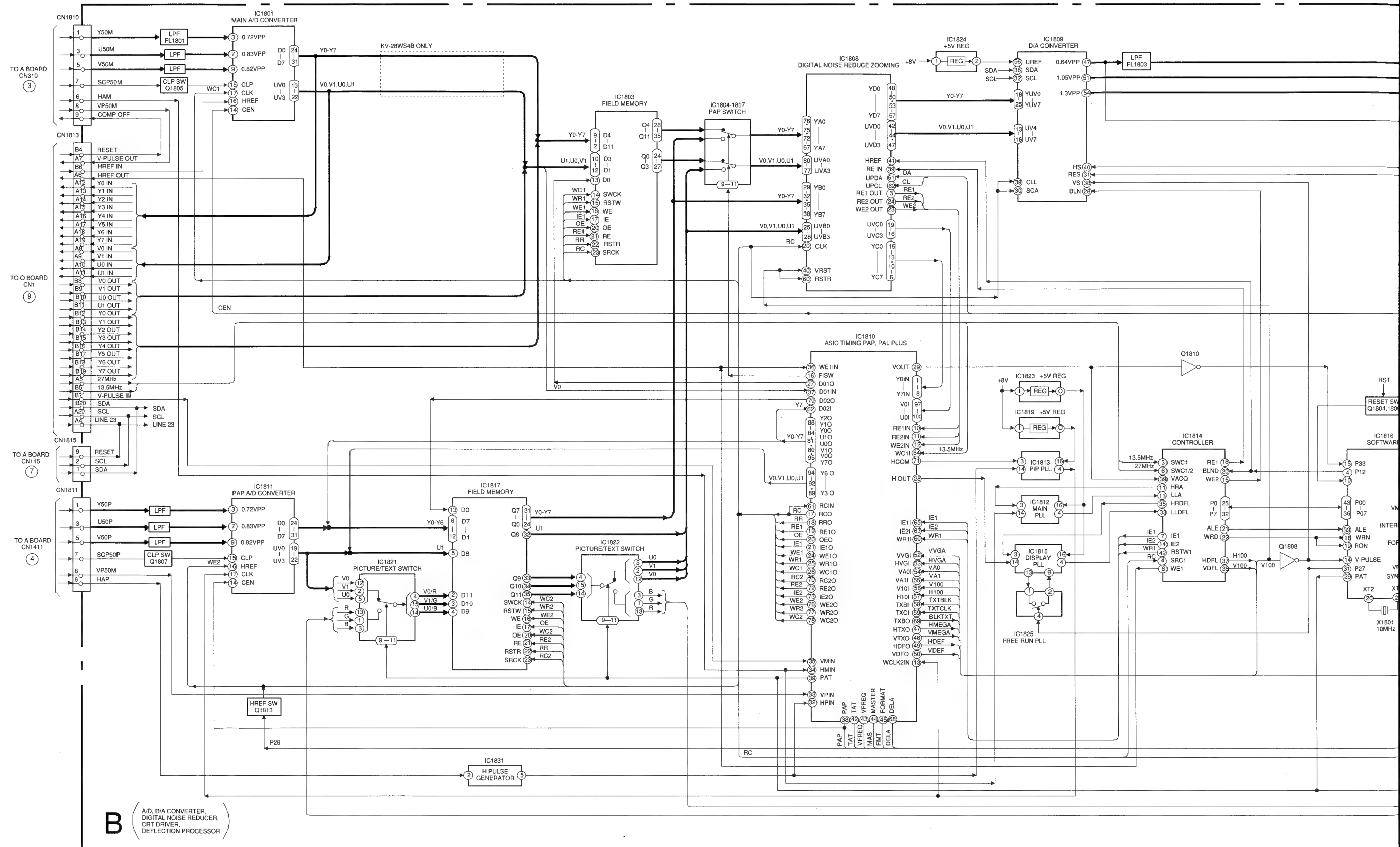


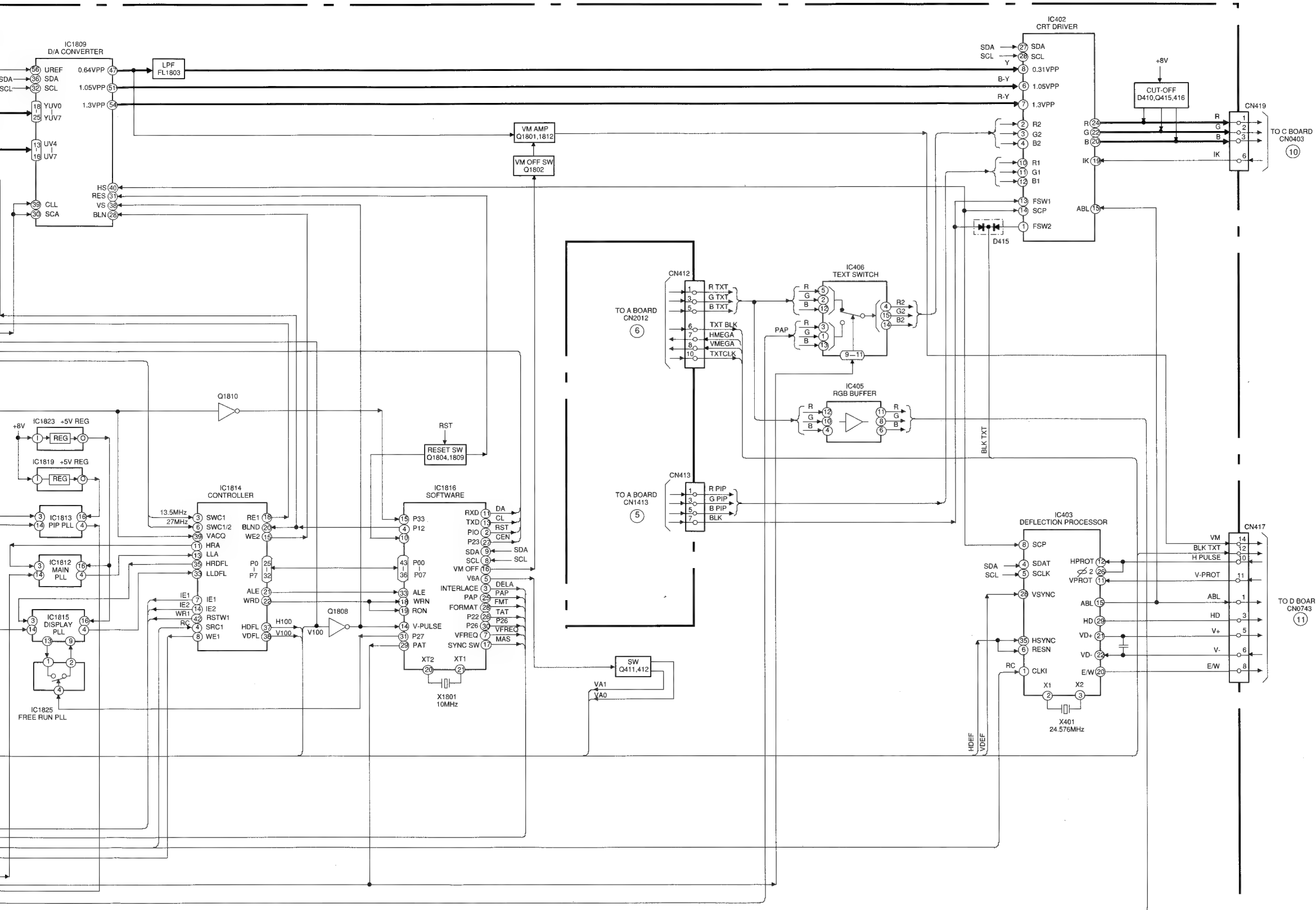


BLOCK DIAGRAM (2)

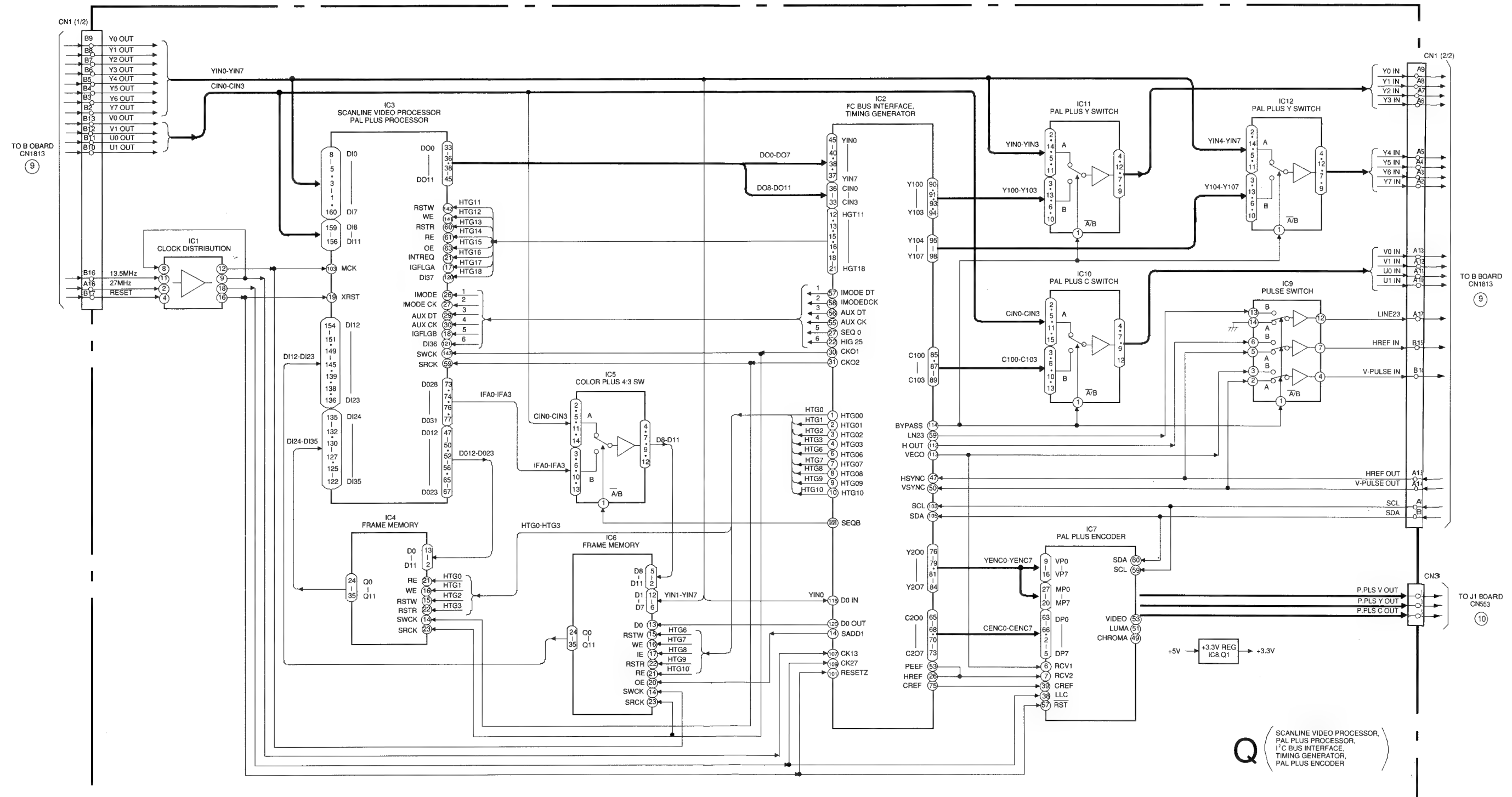


BLOCK DIAGRAM (3)

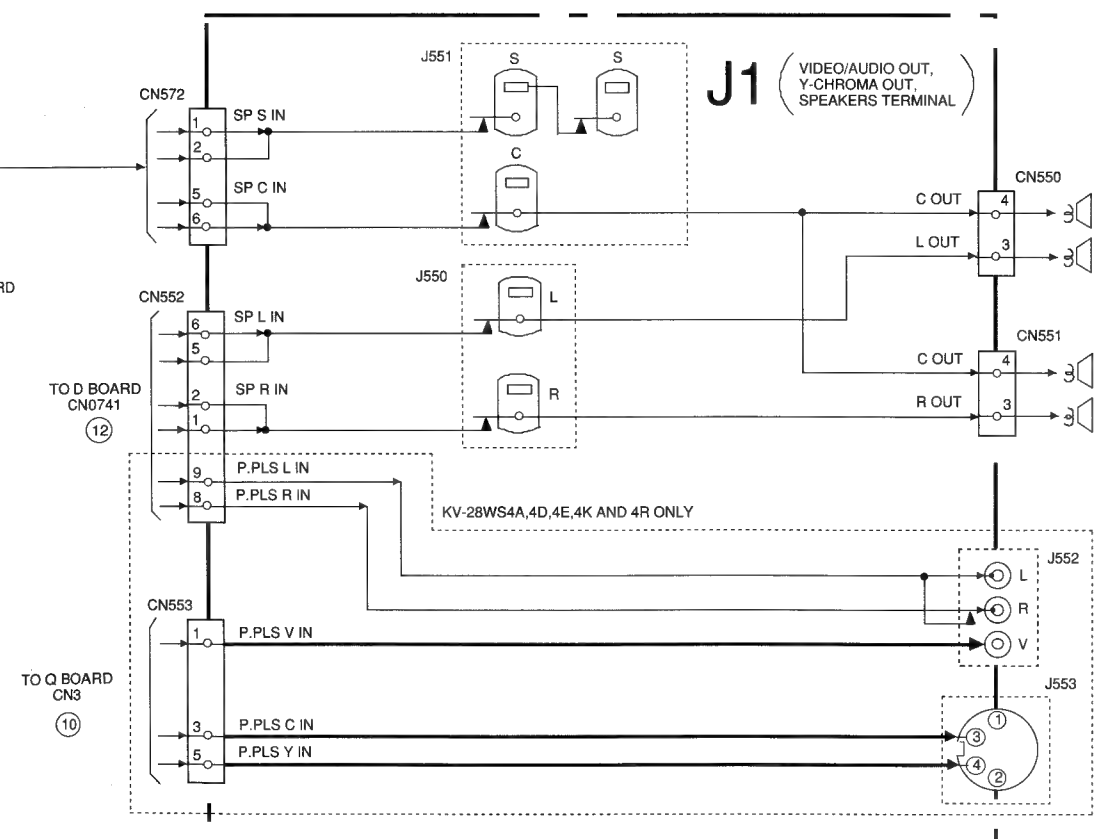
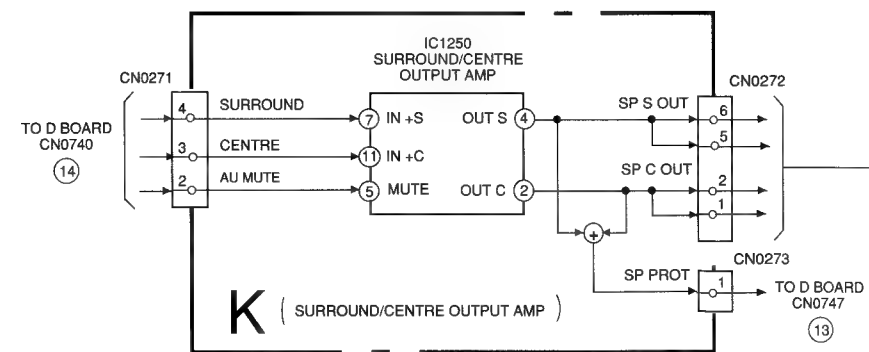
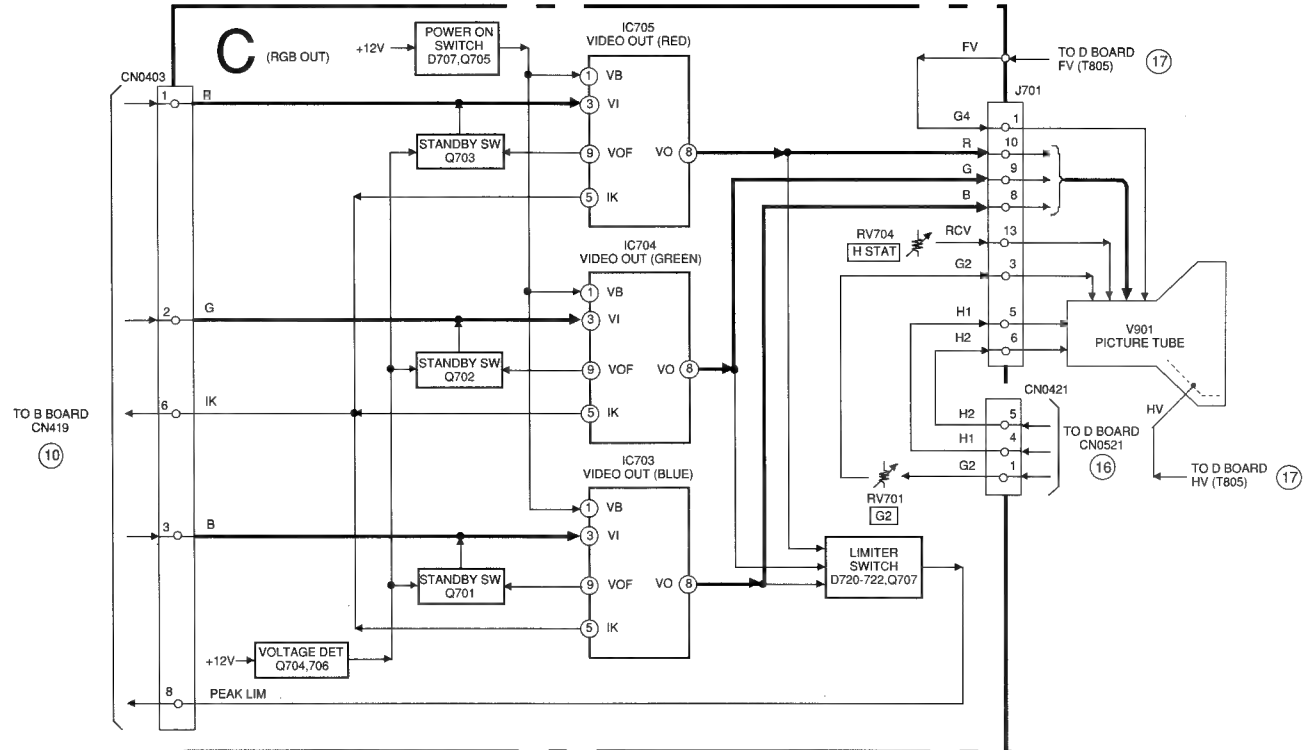
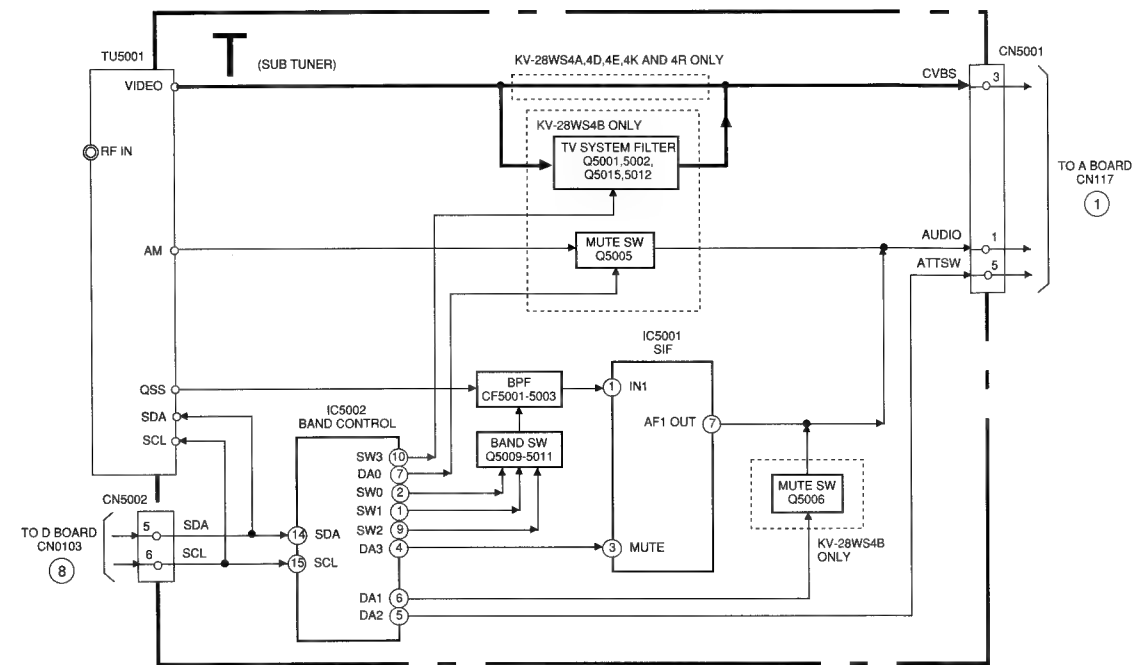




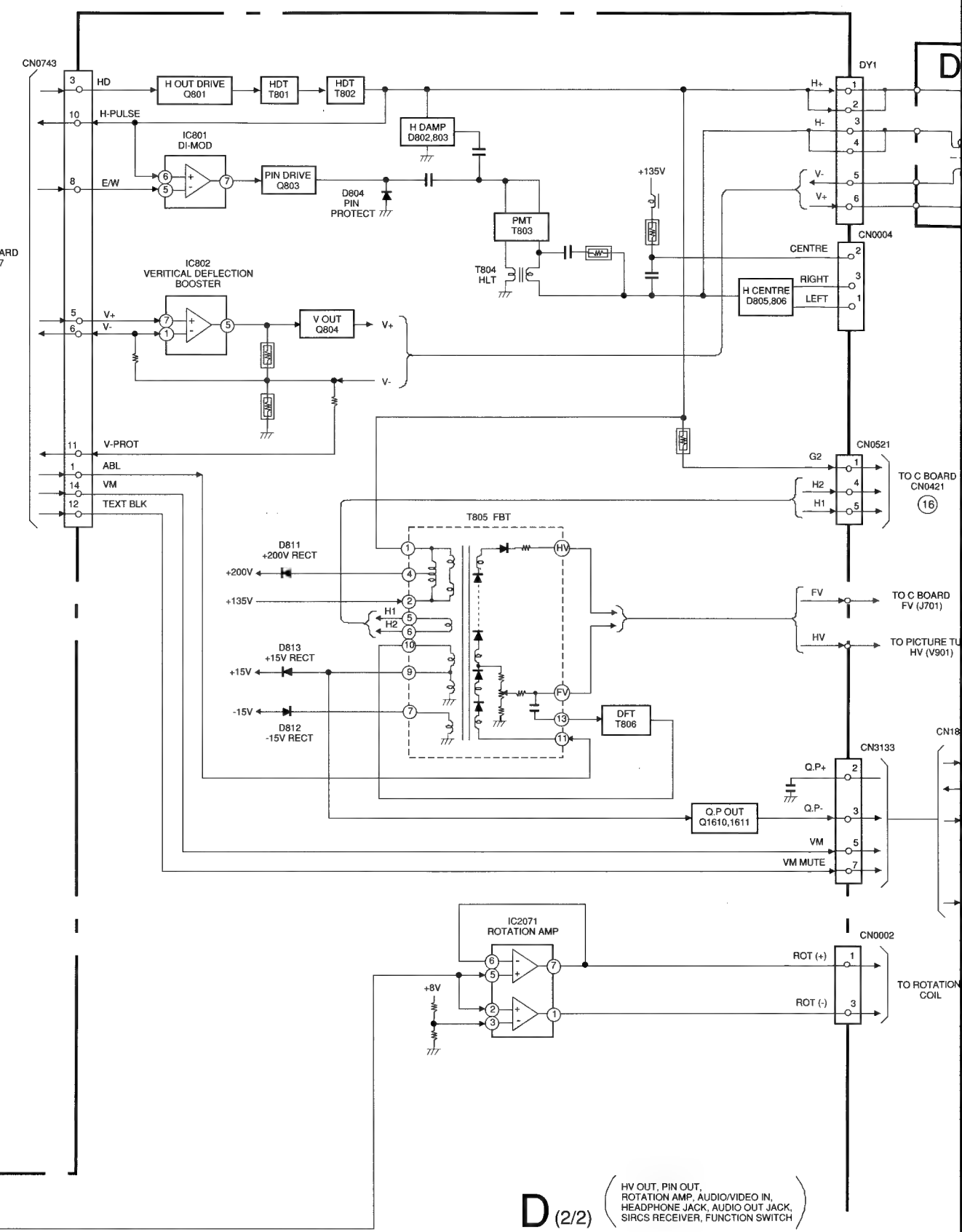
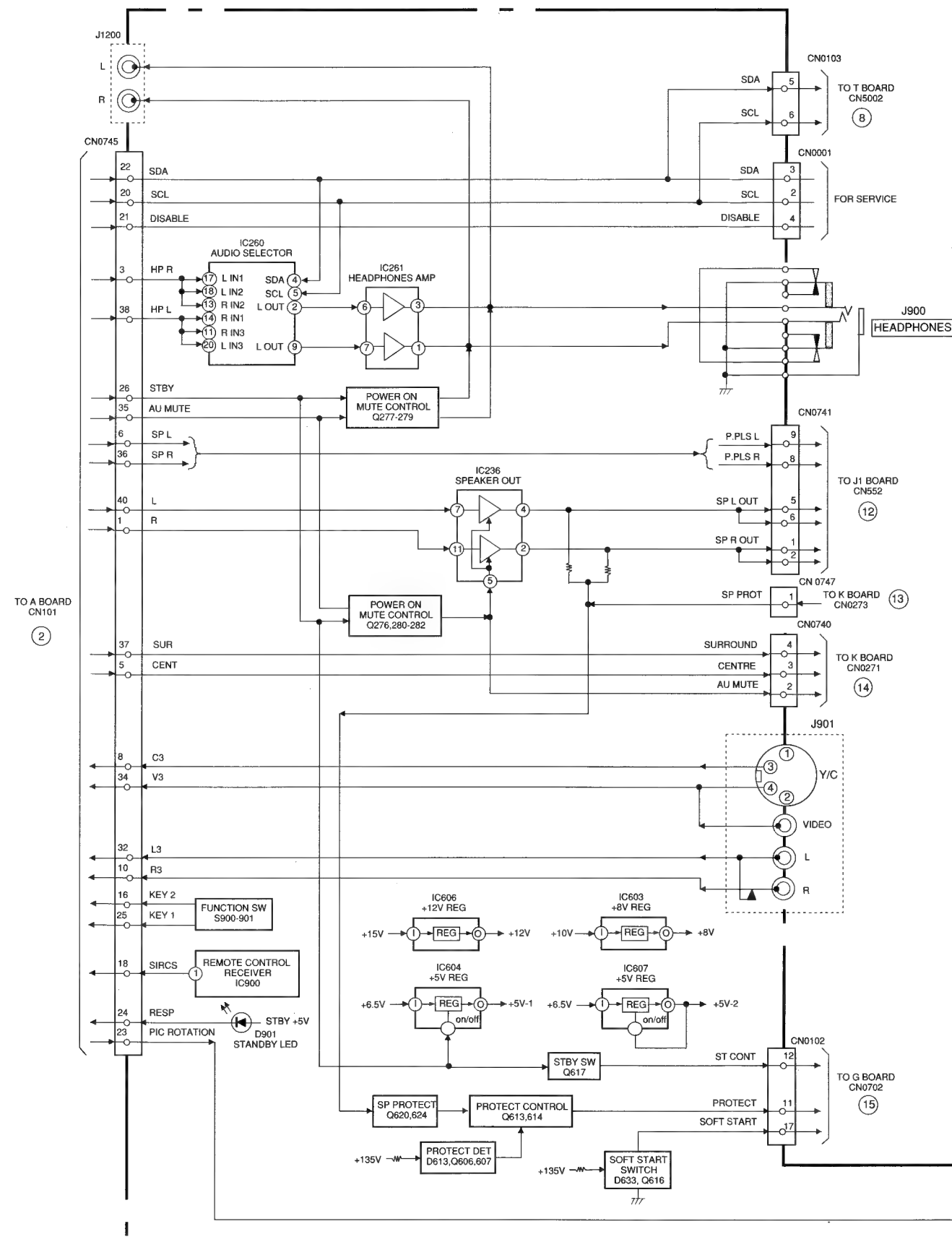
BLOCK DIAGRAM (4) (KV-28WS4A,4D,4E,4K and 4R only)



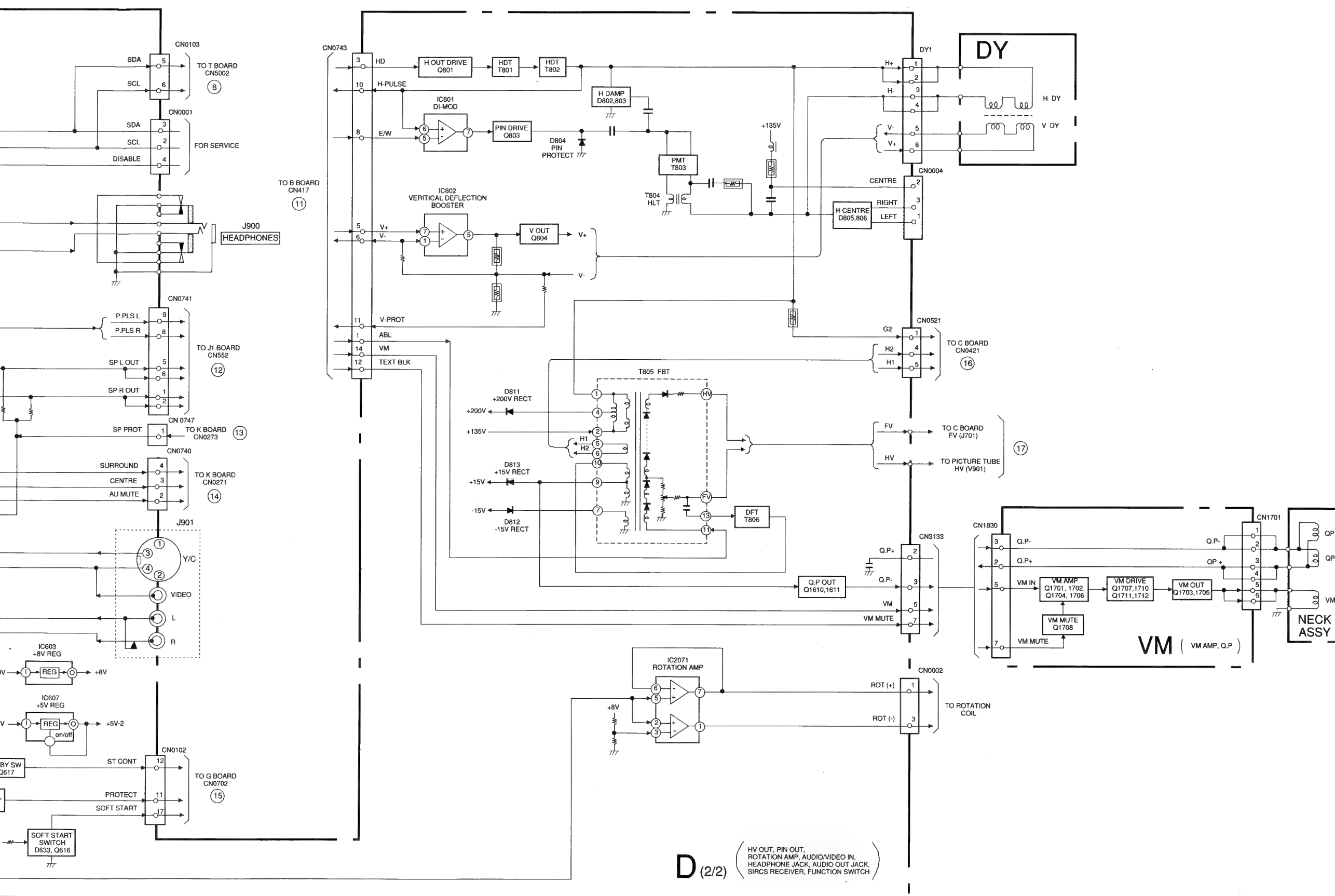
BLOCK DIAGRAM (5)



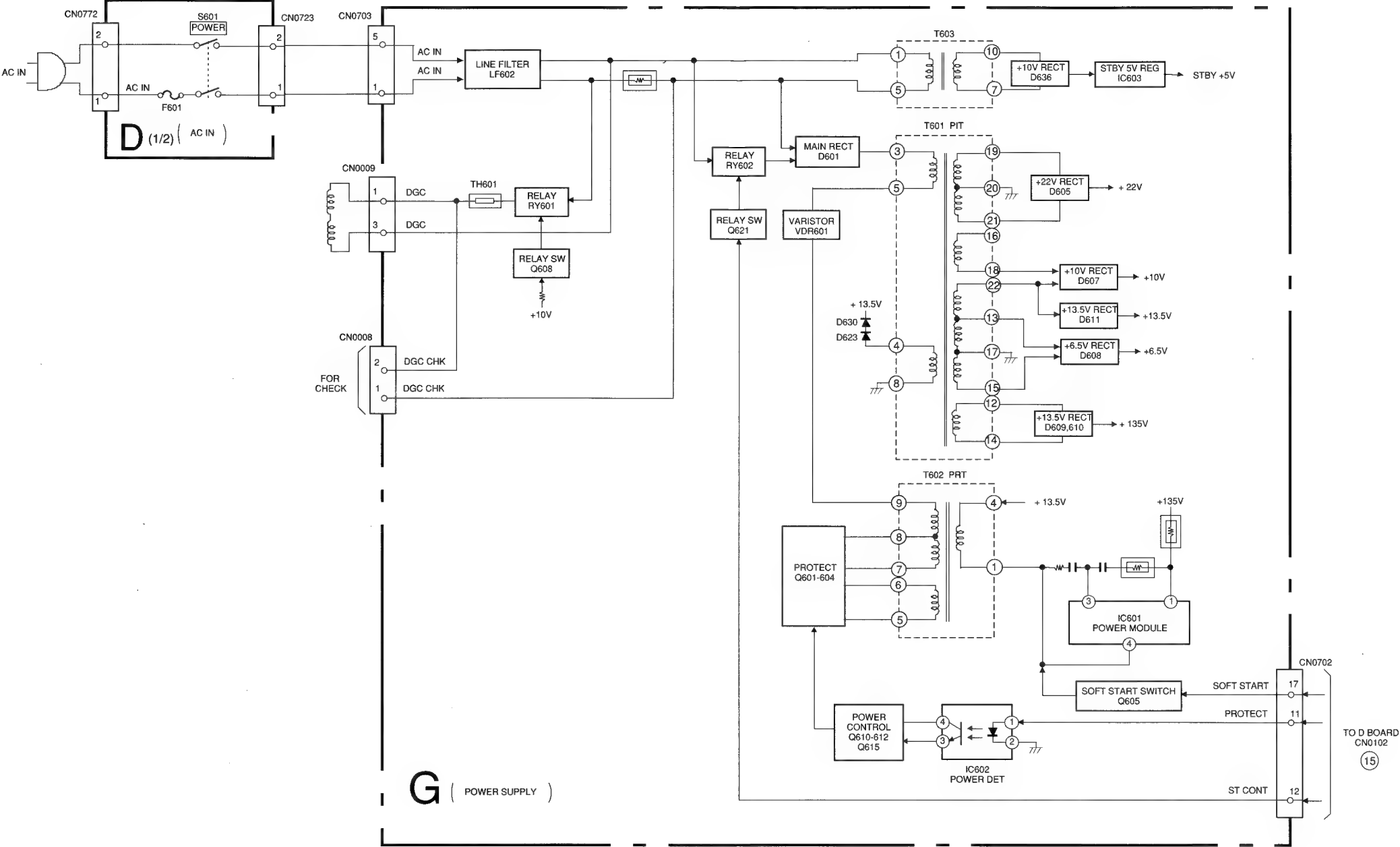
BLOCK DIAGRAM (6)



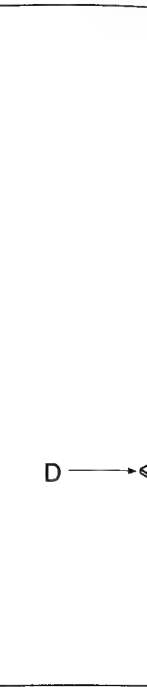
D_(2/2) (HV OUT, PIN OUT, ROTATION AMP, AUDIO/VIDEO IN, HEADPHONE JACK, AUDIO OUT JACK, SIRCS RECEIVER, FUNCTION SWITCH)



BLOCK DIAGRAM (7)



5-2. CIRCU



5-3. SCHE

Note :

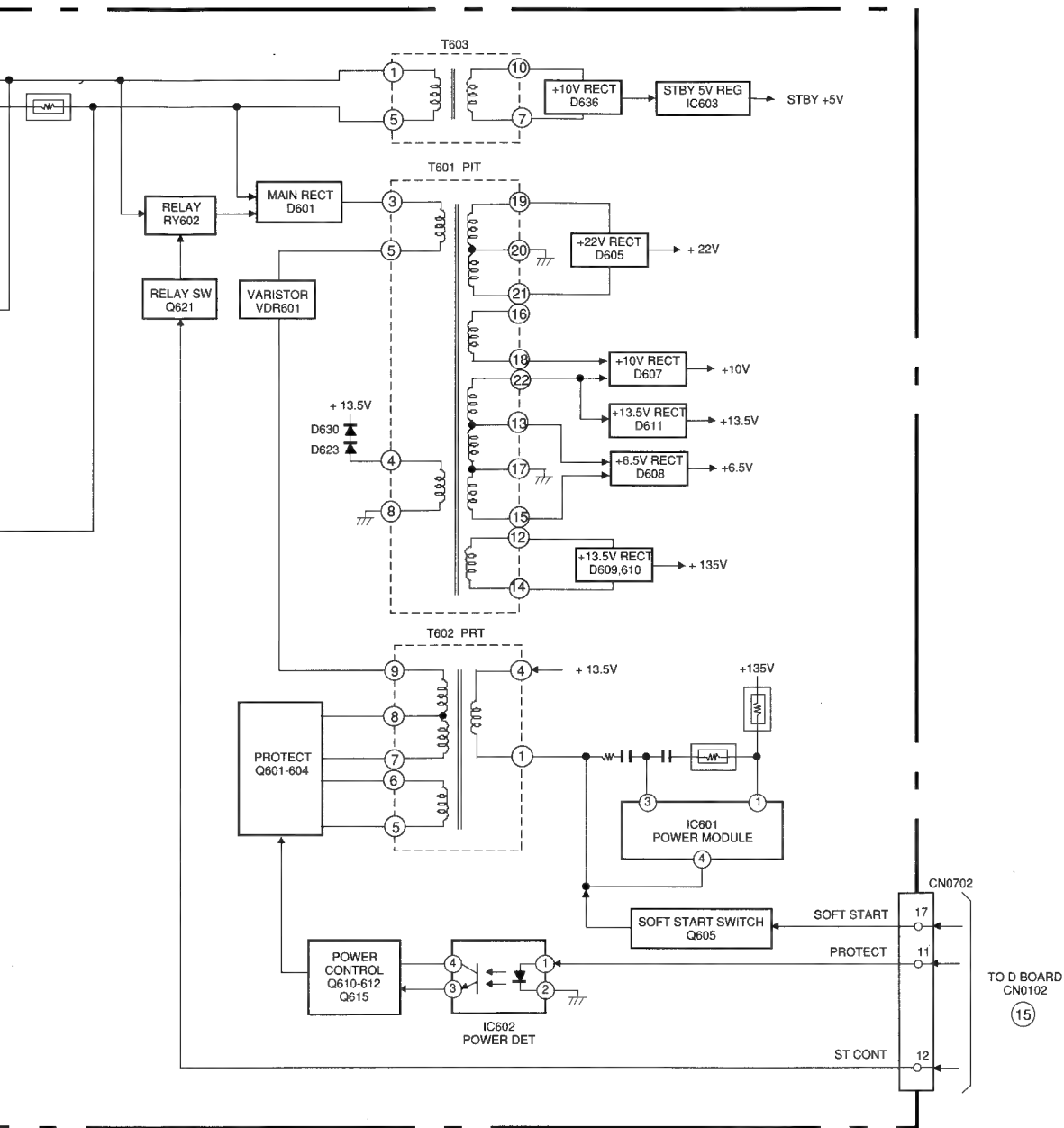
- All capacitors are 50WV or higher unless otherwise specified.
- All resistors are 1/4W, 5% tolerance unless otherwise specified.
- Indication of electrical symbols.

Pitch : 5 mm
Rating element

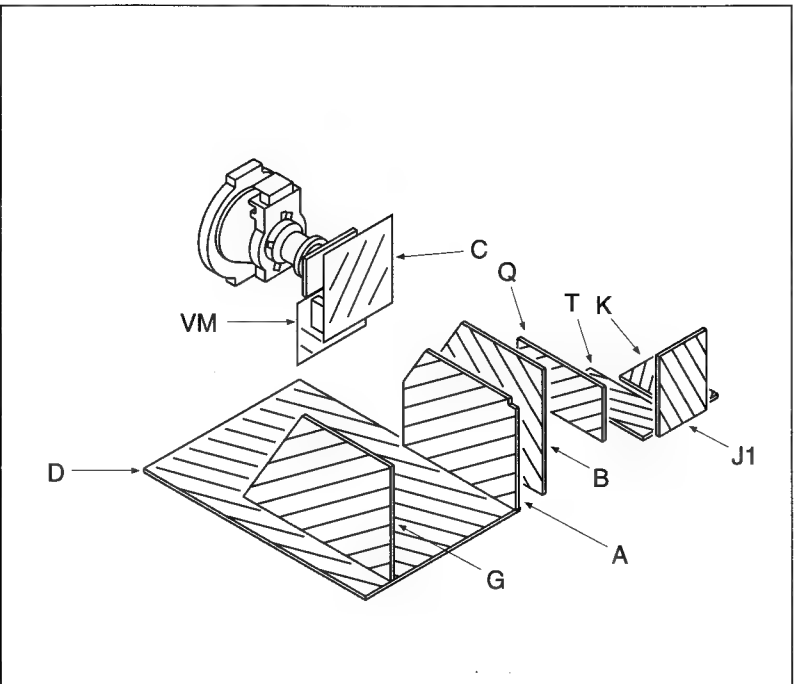
- All variable components are marked with a triangle symbol.
- B, unless otherwise specified.
- Symbols for electrical components.

Note : The component is marked with a triangle symbol and a part number.

Note : Les composants sont marqués avec un triangle et un numéro.



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu\text{F}$
50WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
k = 1000 , M = 1000K
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5 mm
Rating electrical power $\frac{1}{4}$ W

- : nonflammable resistor.
- : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- \perp : earth - ground.
- /// : earth - chassis.
- # : no mounted.

Note : The components identified by shading and marked are critical for safety. Replace only with the part number specified.

Note : Les composants identifiés par une trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: \times	ADJUSTABLE RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
	: TA	TANTALUM
CAPACITOR	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

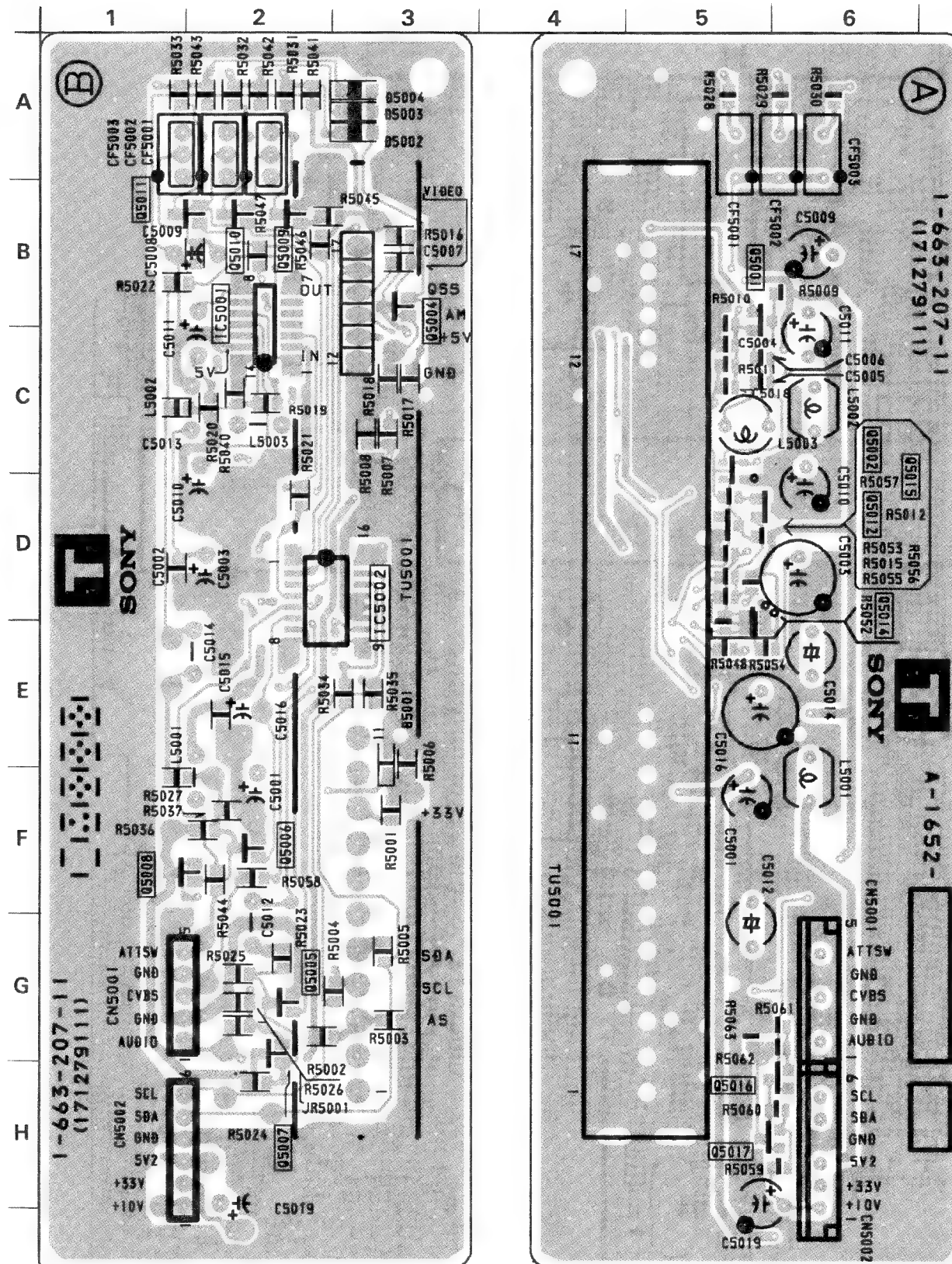
- Readings are taken with a colour-bar signal input.
- Readings are taken with 10M Ω digital multimeter.
- Voltages are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)

T

[SUB TUNER]

T Board < Conductor Side >

T Board < Component Side >

**T BOARD**

IC	
IC5001	B-2
IC5002	D-3
TRANSISTOR	
Q5001	B-5
Q5002	C-6
Q5004	B-3
Q5005	G-2
Q5006	F-2
Q5007	H-2
Q5008	F-1
Q5009	B-2
Q5010	B-2
Q5011	B-1
Q5012	D-6
Q5014	D-6
Q5015	D-6
Q5016	H-5
Q5017	H-5
DIODE	
D5002	A-3
D5003	A-3
D5004	A-3

**T BOARD
IC VOLTAGE TABLE**

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC5001	1	1.8
	3	4.7
	4	3.4
	6-7	2.4
	8-10	2.1
	11	4.4
IC5002	13	4.9
	14	1.8
	2	4.0
	3	0.5
	4	4.7
	5	2.8
	6	0.5
	7	4.7
	9	0.1
	14	4.4
	15	4.0
	16	5.0

**T BOARD
TRANSISTOR VOLTAGE TABLE**

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q5008	2.4	5.0	1.8
Q5009	4.0	-	-
Q5011	0.1	4.8	-
Q5016	1.8	8.2	1.3
Q5017	8.2	2.3	9.0



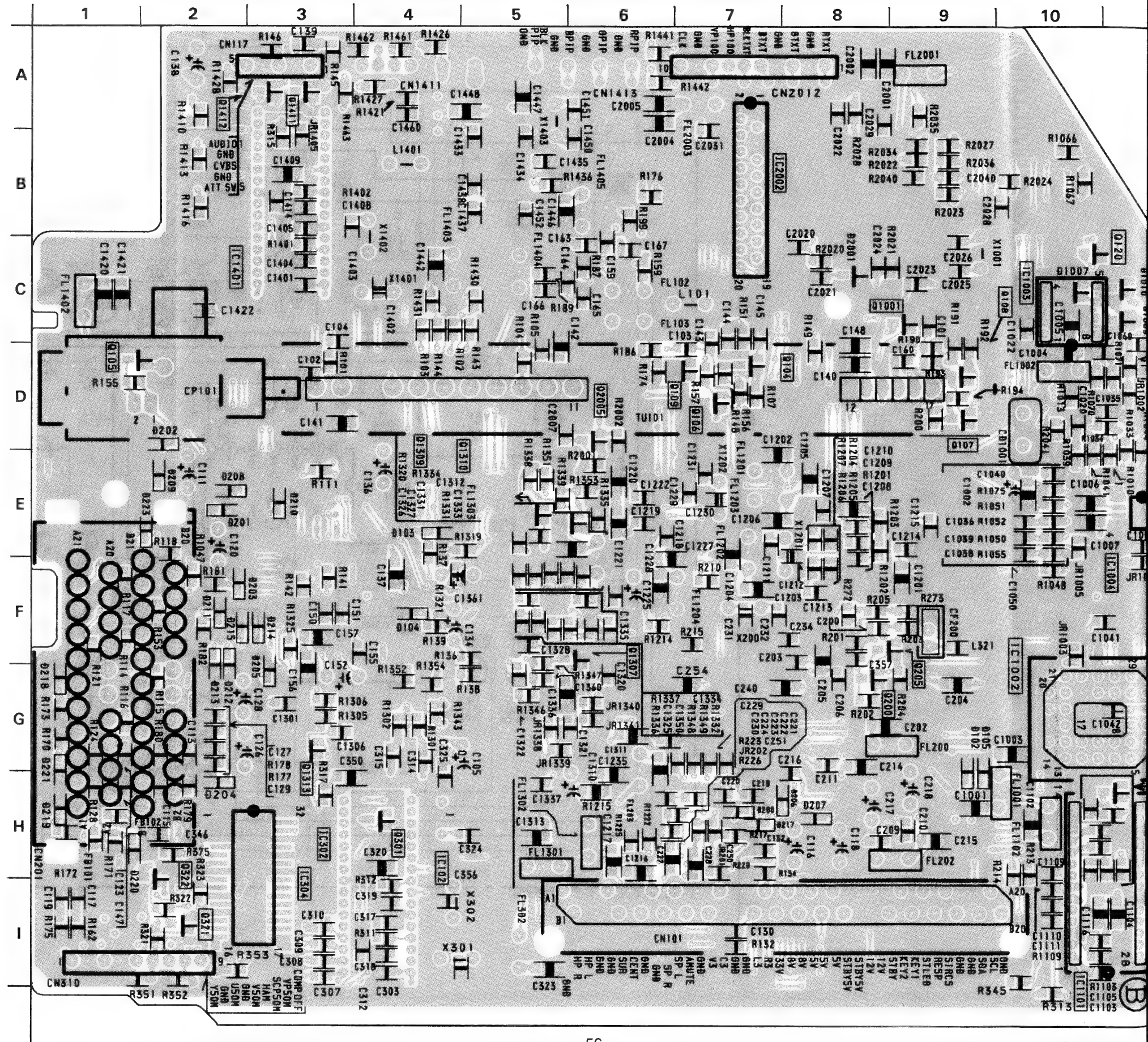
A

AV INPUT/OUTPUT INTERFACE, DIGITAL COMB FILTER, COLOR
DECODER, SOUND PROCESSOR, DOLBY NOISE REDUCTION,
MICRO CONTROLLER, MEGA TEXT

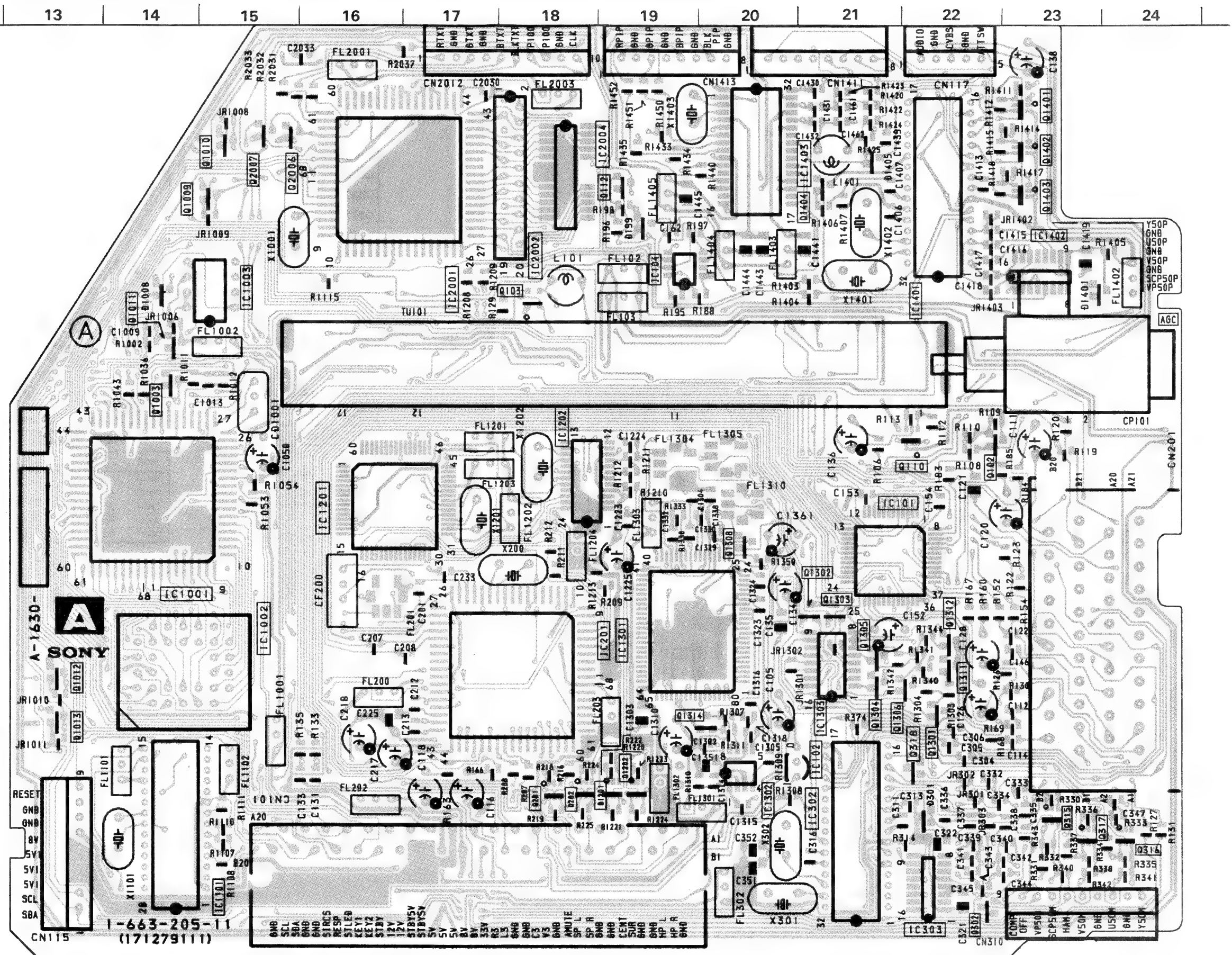
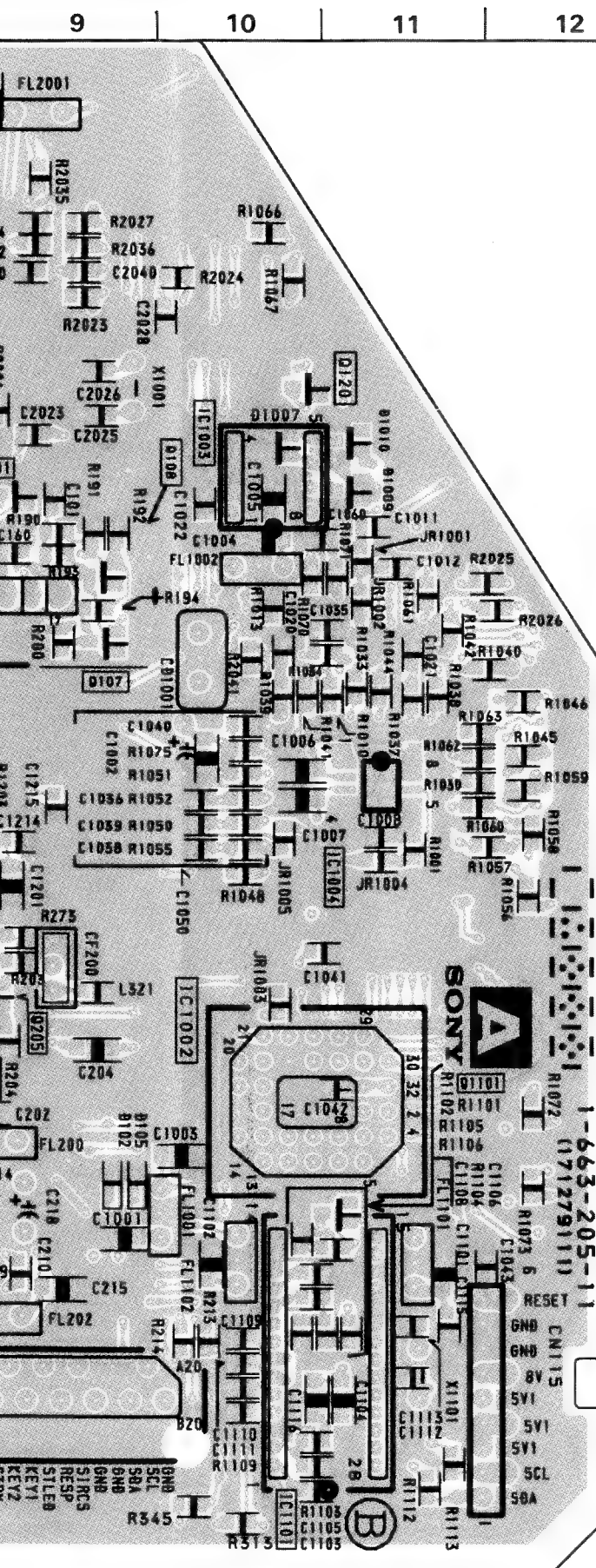
A Board < Conductor Side >

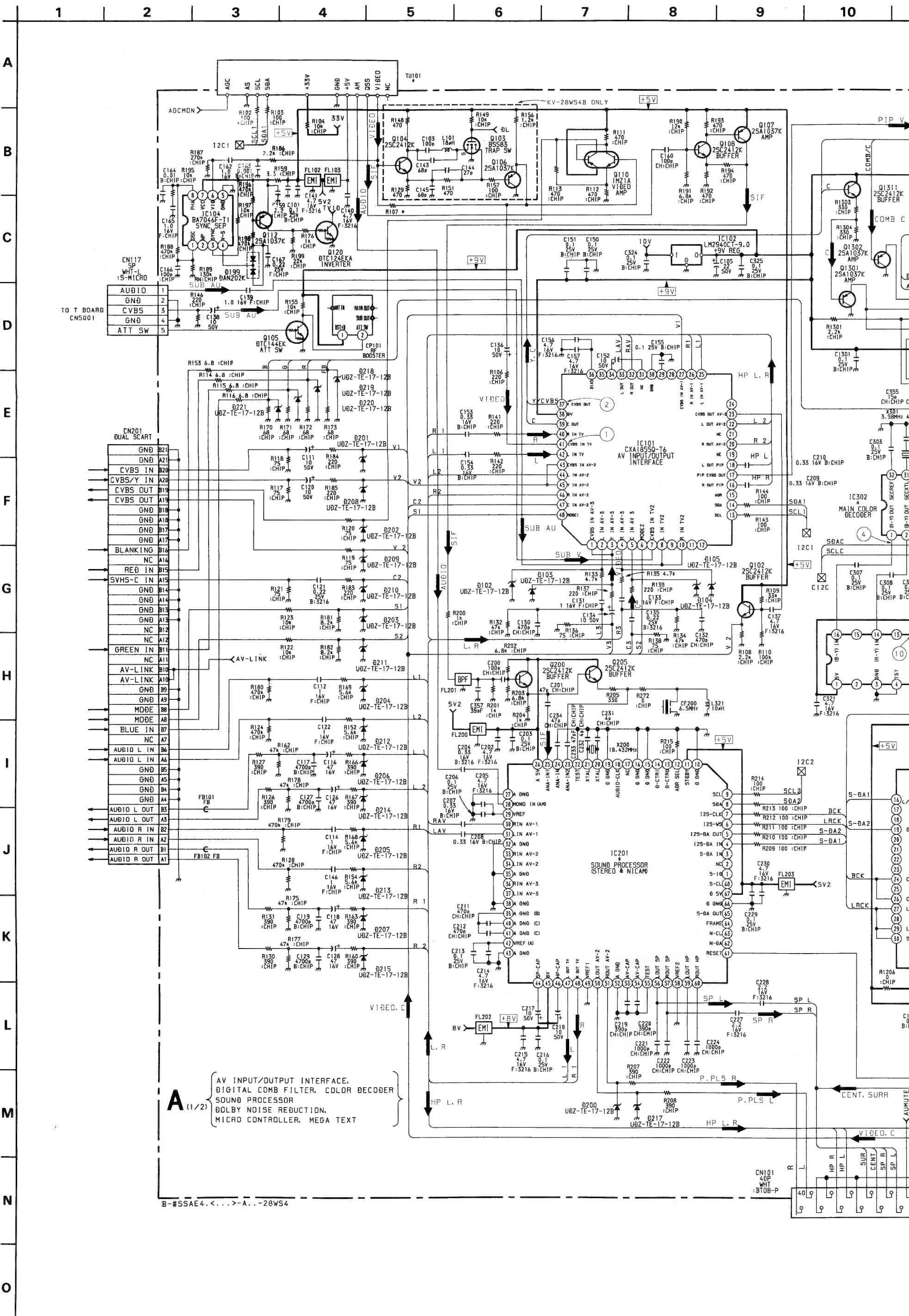
A BOARD

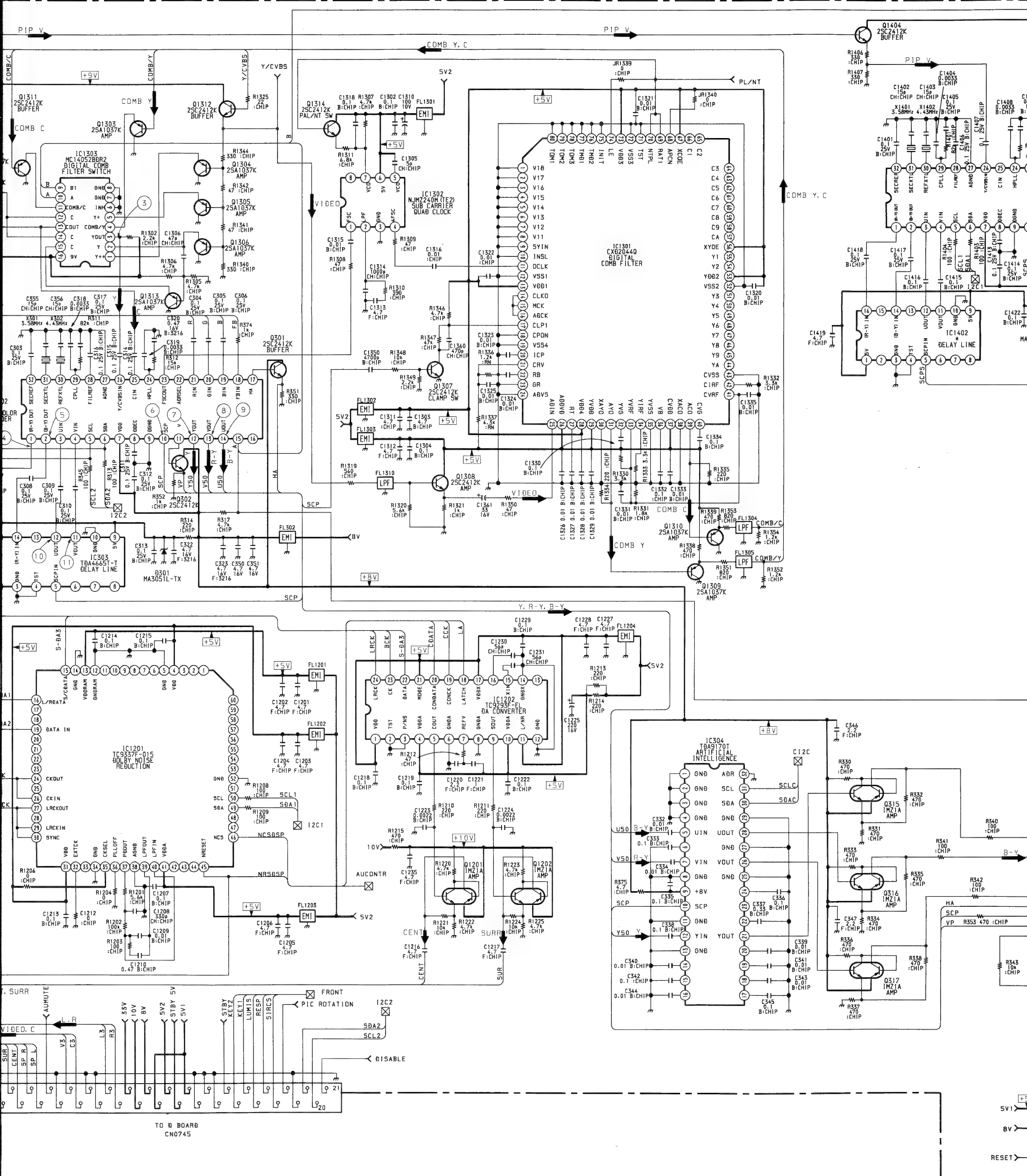
IC	Q1001	C-9	D208	E-2
IC101	E-22	Q1101	G-11	D209
IC102	H-4	Q1201	H-19	D210
IC104	C-19	Q1202	H-19	D211
IC201	G-19	Q1301	H-22	D212
IC302	H-3	Q1302	F-21	D213
IC303	I-22	Q1303	F-21	D214
IC304	H-3	Q1304	G-21	D215
IC1001	F-14	Q1305	G-21	D217
IC1002	G-10	Q1306	G-22	D218
IC1003	C-10	Q1307	F-6	D219
IC1004	E-11	Q1308	F-20	D220
IC1101	I-10	Q1309	D-4	D221
IC1201	E-16	Q1310	D-5	D223
IC1202	E-18	Q1311	G-22	D301
IC1301	G-19	Q1312	F-22	D1007
IC1302	H-20	Q1313	G-3	D1008
IC1303	G-21	Q1314	G-20	D1009
IC1401	C-2	Q1401	A-23	D1010
IC1402	C-23	Q1402	B-23	D1401
IC2001	C-17	Q1403	B-23	D2001
IC2004	B-19	Q1404	B-21	
TRANSISTOR		Q1411	A-3	
Q102	E-23	Q1412	A-2	
Q103	C-18	Q2005	D-6	
Q104	D-8	Q2006	B-15	
Q105	D-1	Q2007	B-15	
Q106	D-7	DIODE		
Q107	D-9	D102	G-9	
Q108	C-10	D103	E-4	
Q110	E-22	D104	F-4	
Q112	B-19	D105	G-9	
Q120	C-11	D199	C-19	
Q200	G-8	D200	H-7	
Q205	F-9	D201	E-2	
Q301	H-4	D202	D-2	
Q302	I-22	D203	F-3	
Q315	H-23	D204	H-2	
Q316	I-24	D205	F-3	
Q317	I-24	D206	H-8	
Q318	H-22	D207	H-8	

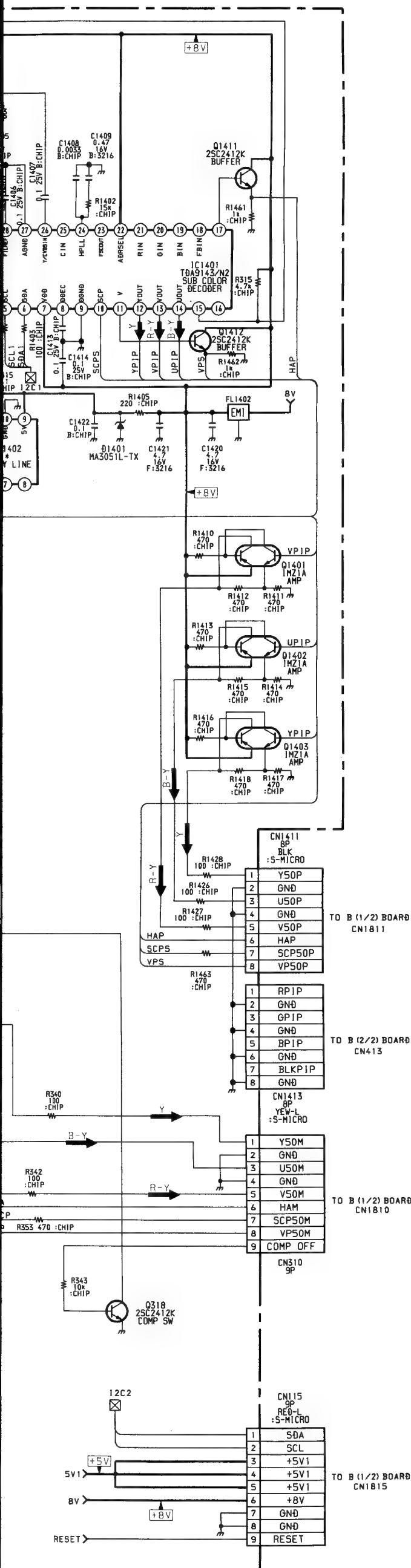


A Board < Component Side >





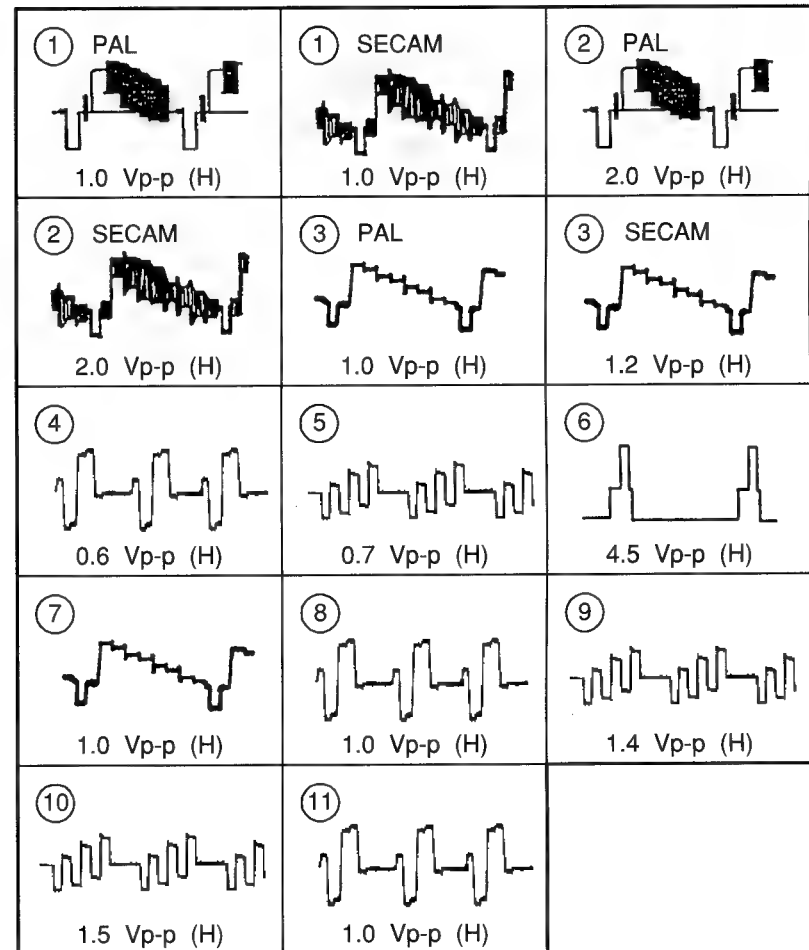




A (1/2) BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q102	1.9	4.7	1.3
Q105	0.08	4.5	0.08
Q107	4.4	1.7	5.0
Q108	1.8	4.4	1.2
Q112	4.3	4.9	5.0
Q120	4.6	0.1	0.1
Q301	0.5	8.0	0.4
Q302	-	8.0	0.3
Q318	0.1	5.2	0.1
Q1201	8.6	5.0	9.2
Q1202	0.7	5.0	9.2
Q1301	1.9	-	0.2
Q1302	-	-	0.6
Q1303	0.8	-	1.5
Q1304	2.2	-	0.1
Q1305	2.0	-	0.1
Q1306	1.7	-	-
Q1307	-	3.4	0.1
Q1308	3.5	4.7	2.9
Q1309	0.9	0.1	1.6
Q1310	1.0	0.1	1.6
Q1311	4.5	9.0	3.9
Q1312	4.5	9.0	-
Q1313	4.6	0.7	0.1
Q1314	4.8	4.7	4.3
Q1404	4.5	7.8	3.8
Q1411	0.5	8.0	0.6
Q1412	0.1	8.0	0.1
Q1201	2.6	8.6	2.1
Q1202	2.6	8.6	2.1

WAVEFORMS A BOARD

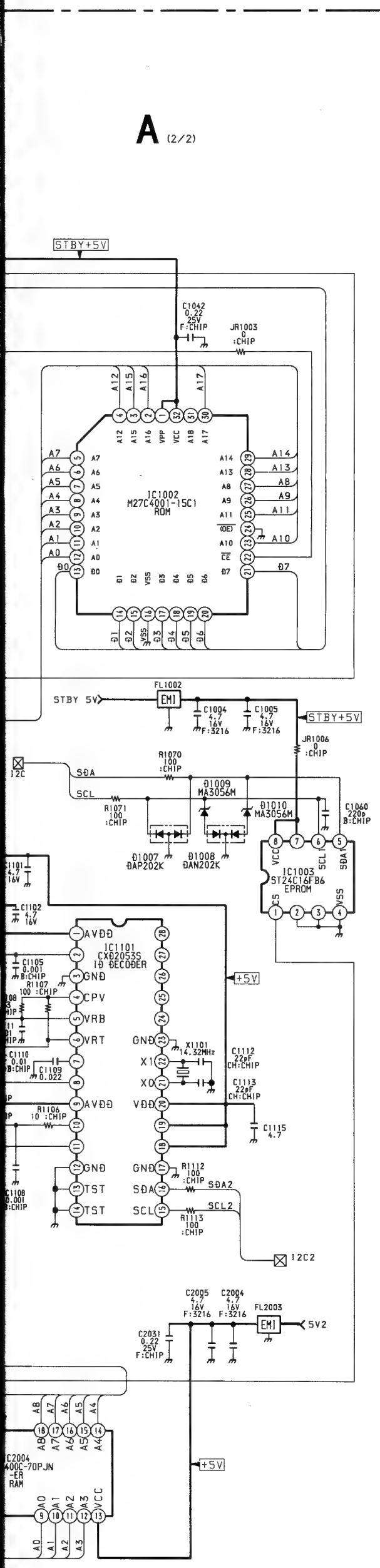


A (1/2) BOARD IC VOLTAGE TABLE

IC Voltage Table					
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC201	4	0.5	IC1201	4	4.7
	5-6	4.7		13	4.7
	7	2.4		31	4.7
	8-9	4.7		35	4.7
	20	2.4		37	2.7
	24	4.4		39	2.2
	25	8.8		40	2.7
	26	4.4		41	4.7
	28	3.8		45	4.8
	29	2.7		29	2.7
	30-31	3.8		30-31	3.8
	39-42	3.8		39-42	3.8
	44	6.2		44	6.2
	45	8.0		45	8.0
	46	7.0	IC1303	1	5.0
	47-48	3.8		5	0.6
IC302	50-51	3.7		11-12	3.0
	53-54	3.8		14	1.4
	56-57	1.2		16	1.2
	61	4.8		1-2	2.0
	1-2	2.0	IC1401	3-4	2.4
	3-4	2.4		5	3.5
	5	3.0		6	4.0
	6	4.0		7	7.8
	7	8.0		8	5.0
	8	5.0		10	0.8
	10	0.5		12	2.4
	12	3.2		13-14	2.6
	13-14	2.6		15	8.0
	15	8.0		17	0.3
	17	0.3		22	7.8
	19	1.6		24	3.6
	21	1.0		26	3.3
	23-24	4.0		28	3.5
	26	3.7		29	4.3
	28	3.5		30	2.6
	29	5.0		31	2.6
	30	2.5		32	3.8
	31	2.5			
	32	2.0			

A BOARD * MARK

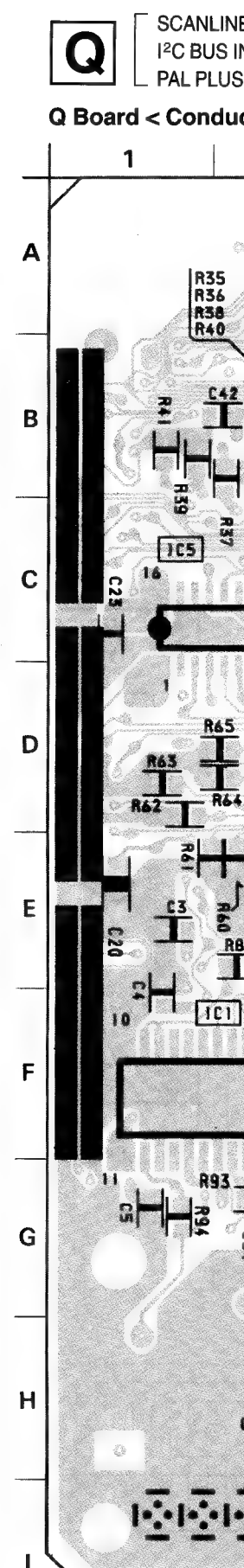
Model Ref. No.	28WS4A	28WS4B	28WS4D	28WS4E	28WS4K	28WS4R
IC201	MSP3400C-PP-C6-T-ND	MSP3410B-PS-F7-T-ND	MSP3400C-PP-C6-T-ND	MSP3410B-PS-F7-T-ND	MSP3400C-PP-C6-T-ND	MSP3400C-PP-C6-T-ND
IC302	TDA9144/N2	TDA9143/N2	TDA9144/N2	TDA9144/N2	TDA9144/N2	TDA9144/N2
IC1402	TDA4665T-T	—	TDA4665T-T	TDA4665T-T	TDA4665T-T	TDA4665T-T
IC2001	SDA5275	SDA5275	SDA5275	SDA5273P-C26-GEG	SDA5275	SDA5275
R107	0:CHIP	—	0:CHIP	0:CHIP	0:CHIP	0:CHIP
TU101	TUVIF (AEP)	TUVIF (FR)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)	TUVIF (AEP)



IC Voltage Table					
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC101	1-5	4.6	1101	1	4.8
	7-8	4.6		2	1.1
	10	4.6		4	0.9
	17	4.6		5	0.3
	23	4.6		6-7	2.4
	29	4.6		8	1.4
	31	4.6		9	4.7
	34	4.6		10	1.7
	36	4.6		11	1.5
	38	9.0		16	4.0
	40-47	4.6		18-20	4.7
IC1001	5	2.4		21	2.5
	6	4.8		22	2.3
	19	3.6	2001	2	0.4
	20	0.1		5	0.3
	24	4.8		6-7	1.6
	26	2.1		8	4.0
	27	2.3		10	1.0
	28	4.6		11-12	4.7
	30	0.1		16	4.7
	31-32	2.4		21	4.7
	33	4.8		23	2.9
	36	4.1		25	4.7
	38	0.1	66	4.7	
	39	0.6	68	4.7	
	40	4.8			
	41	0.1			
	42	4.8			
	43	4.4			
	44	4.1			
	48	4.8			
49	2.2				
50	4.8				
52	4.8				
54	4.8				

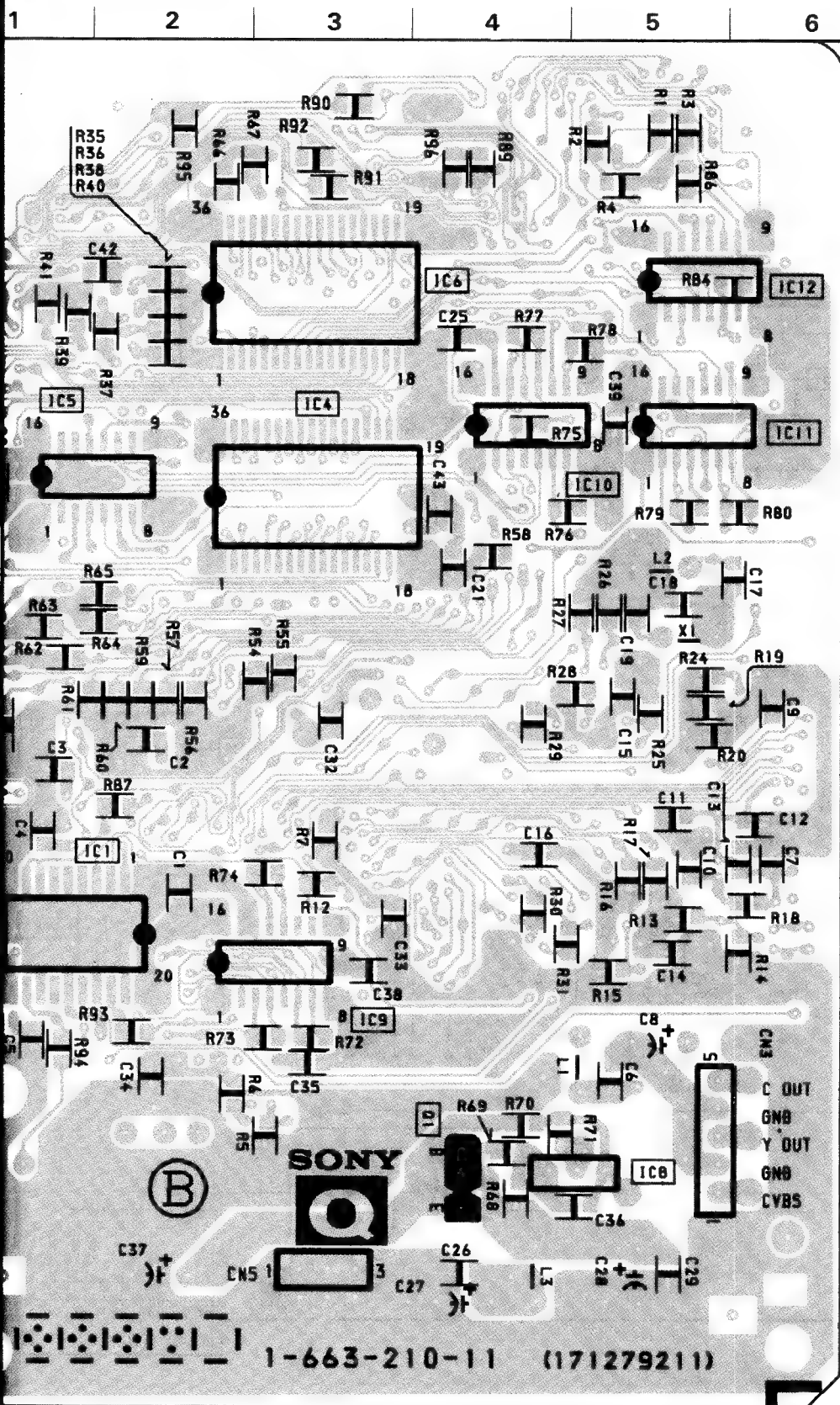
Ref No	B Base	C Collector	E Emitter
Q1001	0.1	0.7	0.1
Q1004	0.1	0.7	-
Q1101	3.3	5.0	2.6

IC	
IC1	F-2
IC2	F-12
IC3	C-12
IC4	C-3
IC5	C-1
IC6	B-4
IC7	F-7
IC8	H-5
IC9	G-3
IC10	C-5
IC11	C-6
IC12	B-6
TRANSISTOR	
Q1	G-4

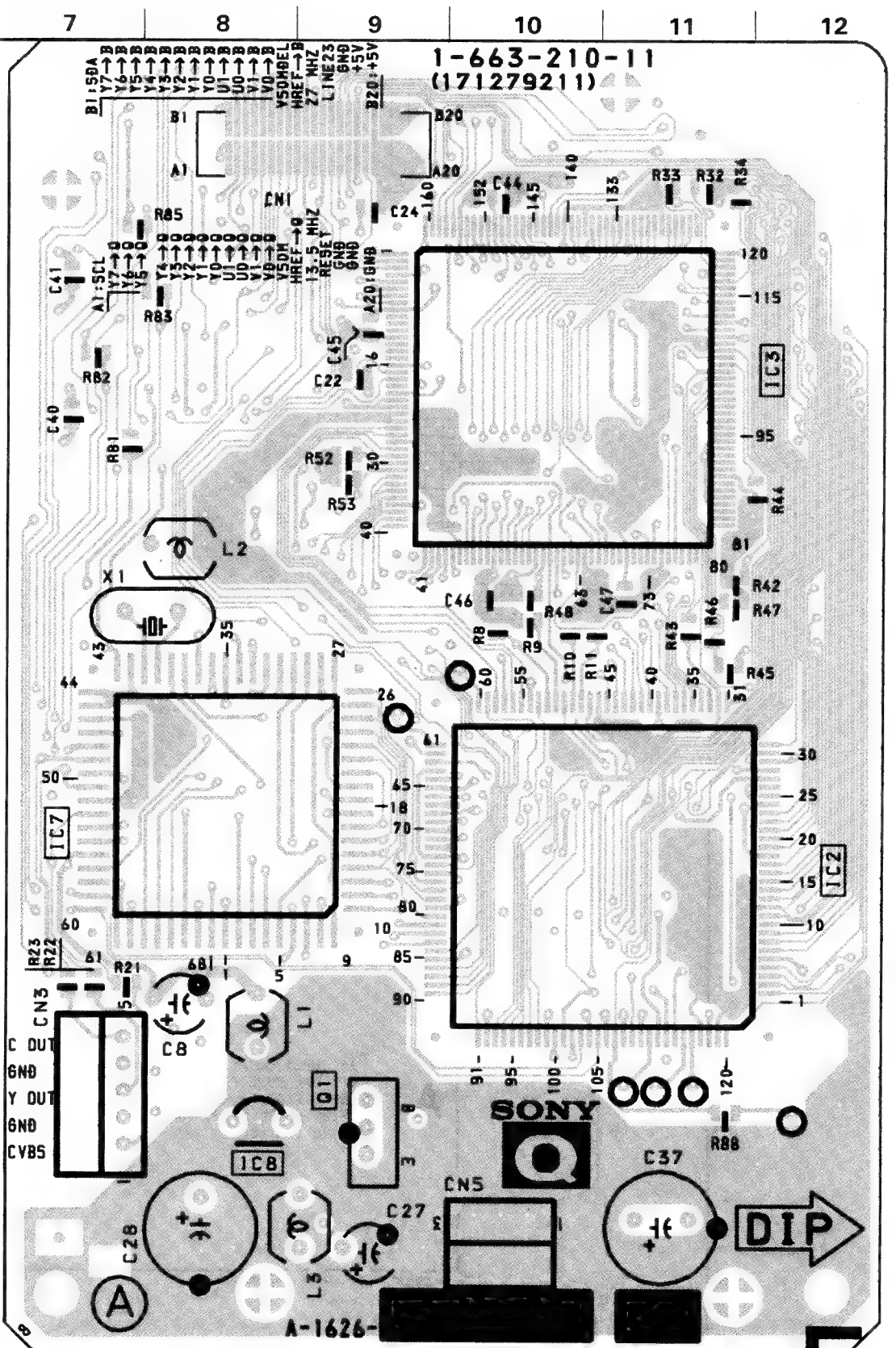


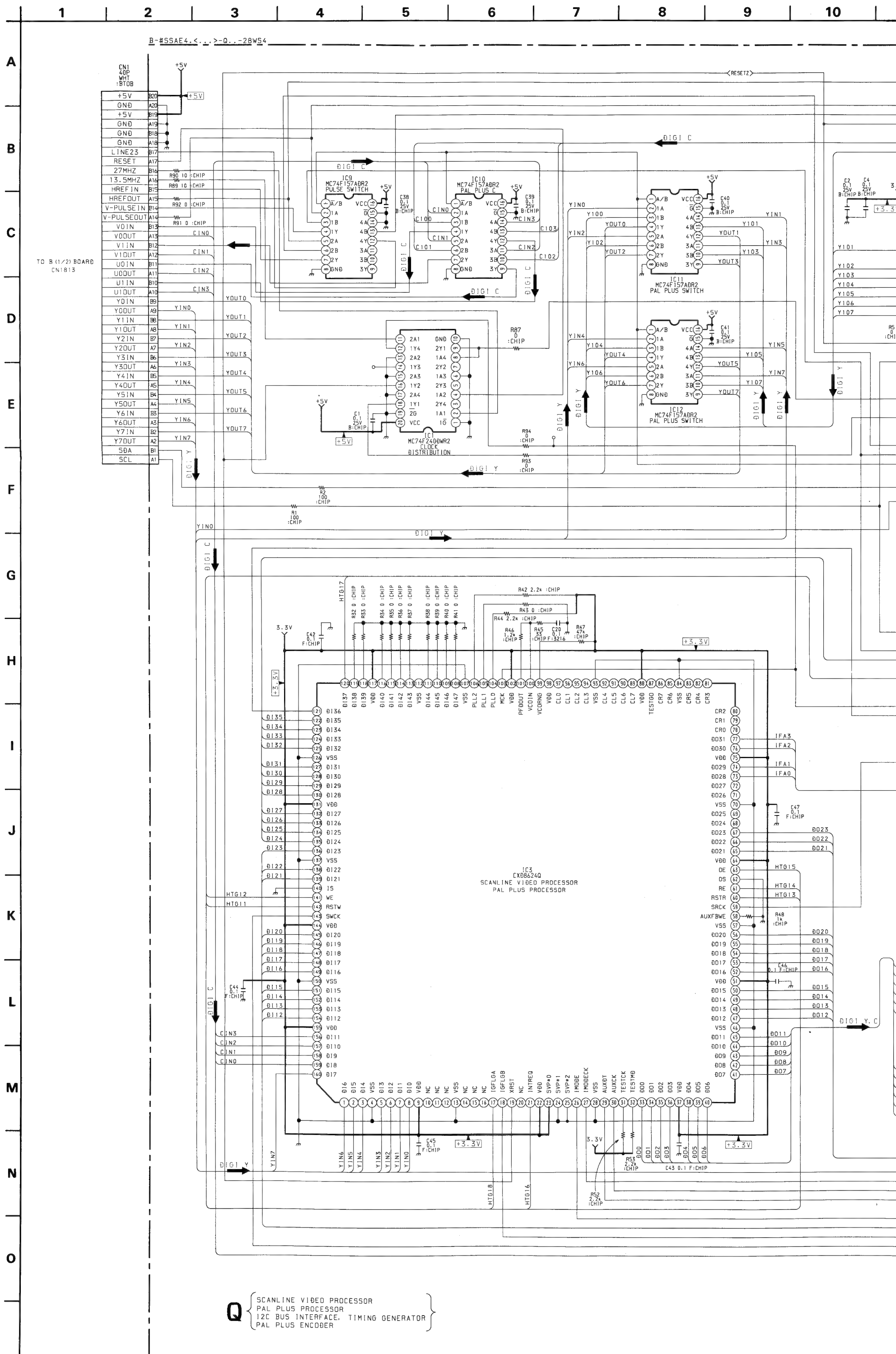
SCANLINE VIDEO PROCESSOR, PAL PLUS PROCESSOR,
I²C BUS INTERFACE, TIMING GENERATOR,
PAL PLUS ENCODER

rd < Conductor Side >

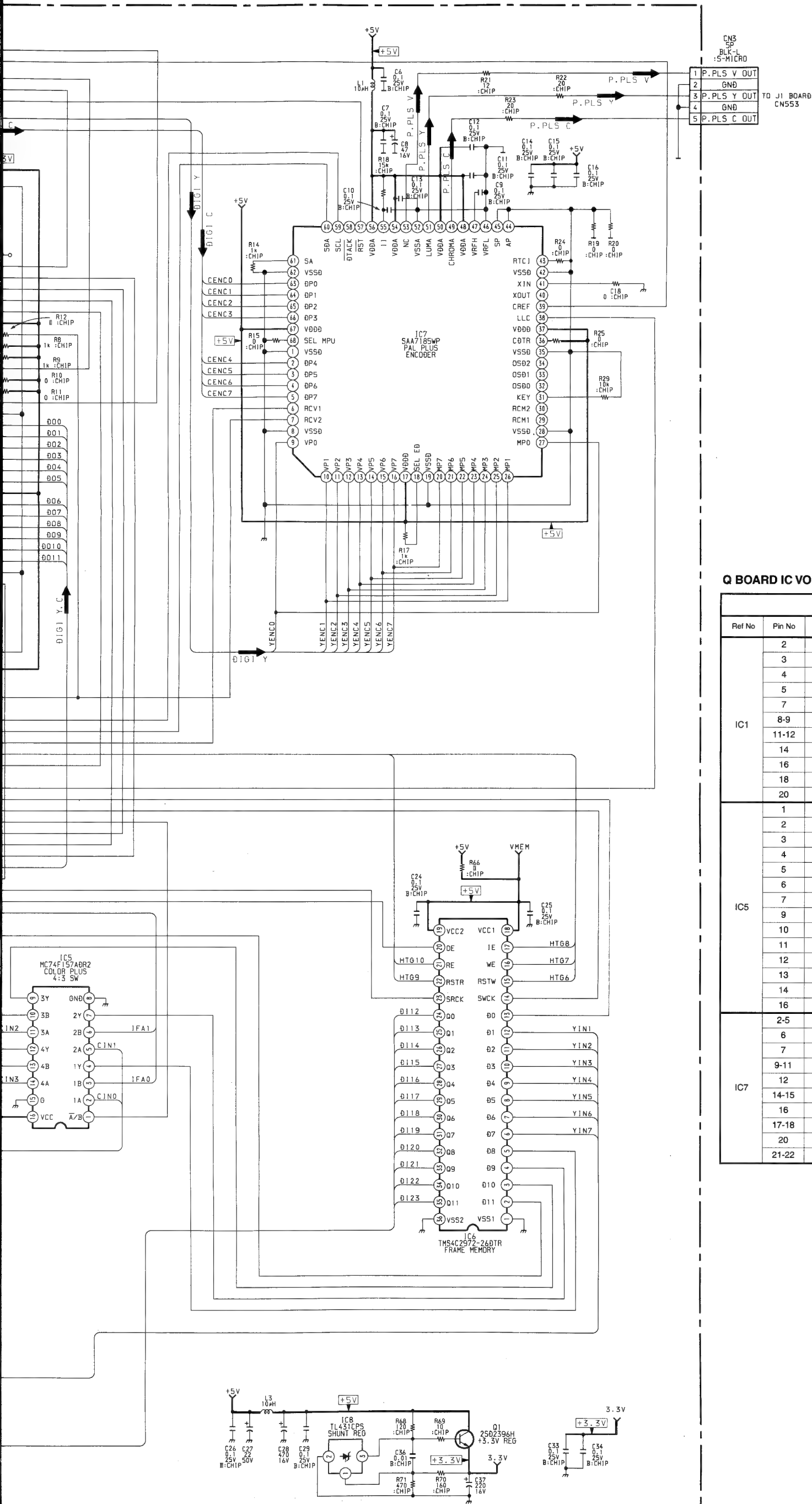


Q Board < Component Side >







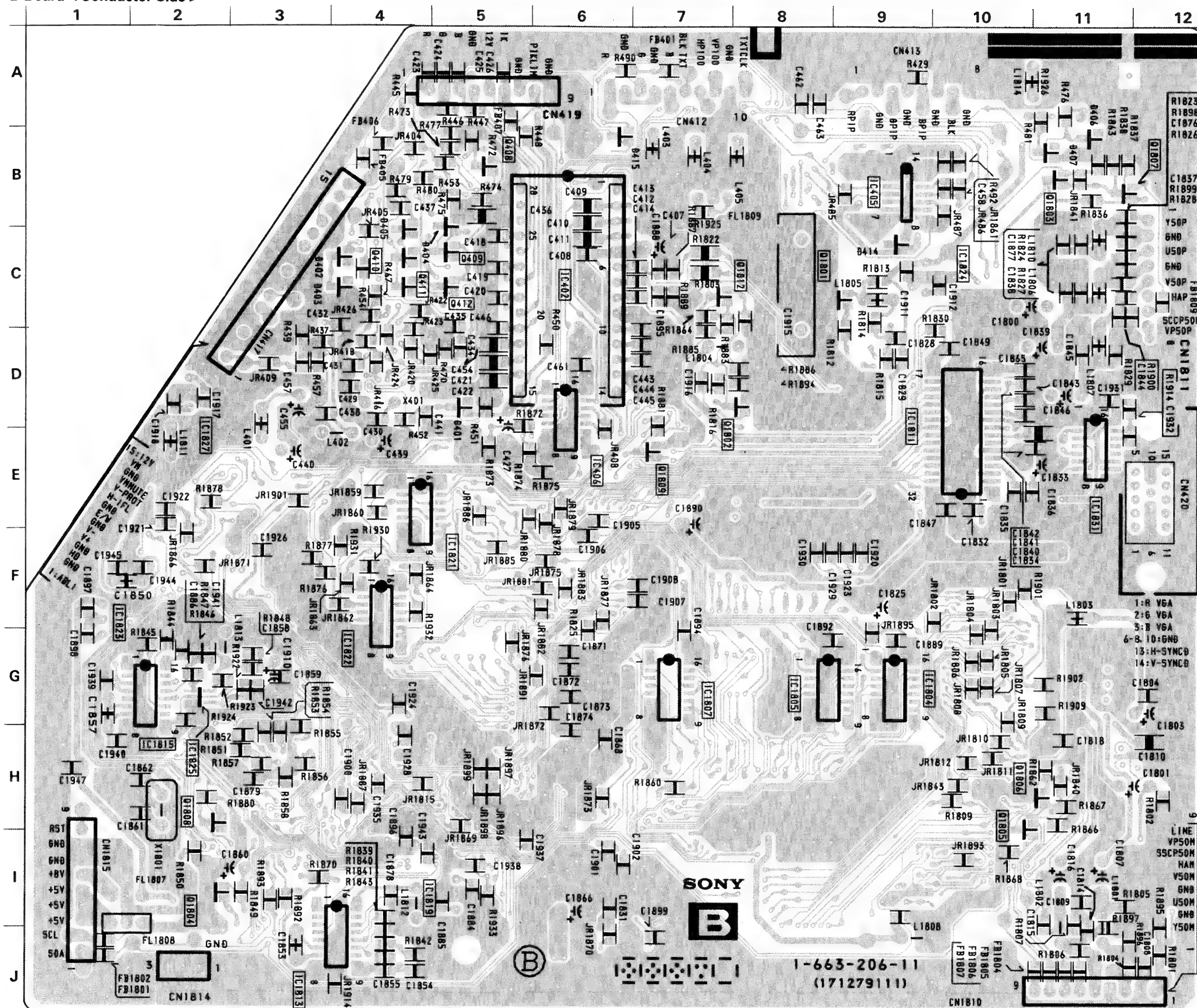


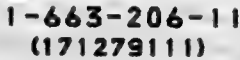
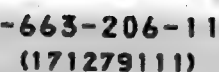
Q BOARD IC VOLTAGE TABLE

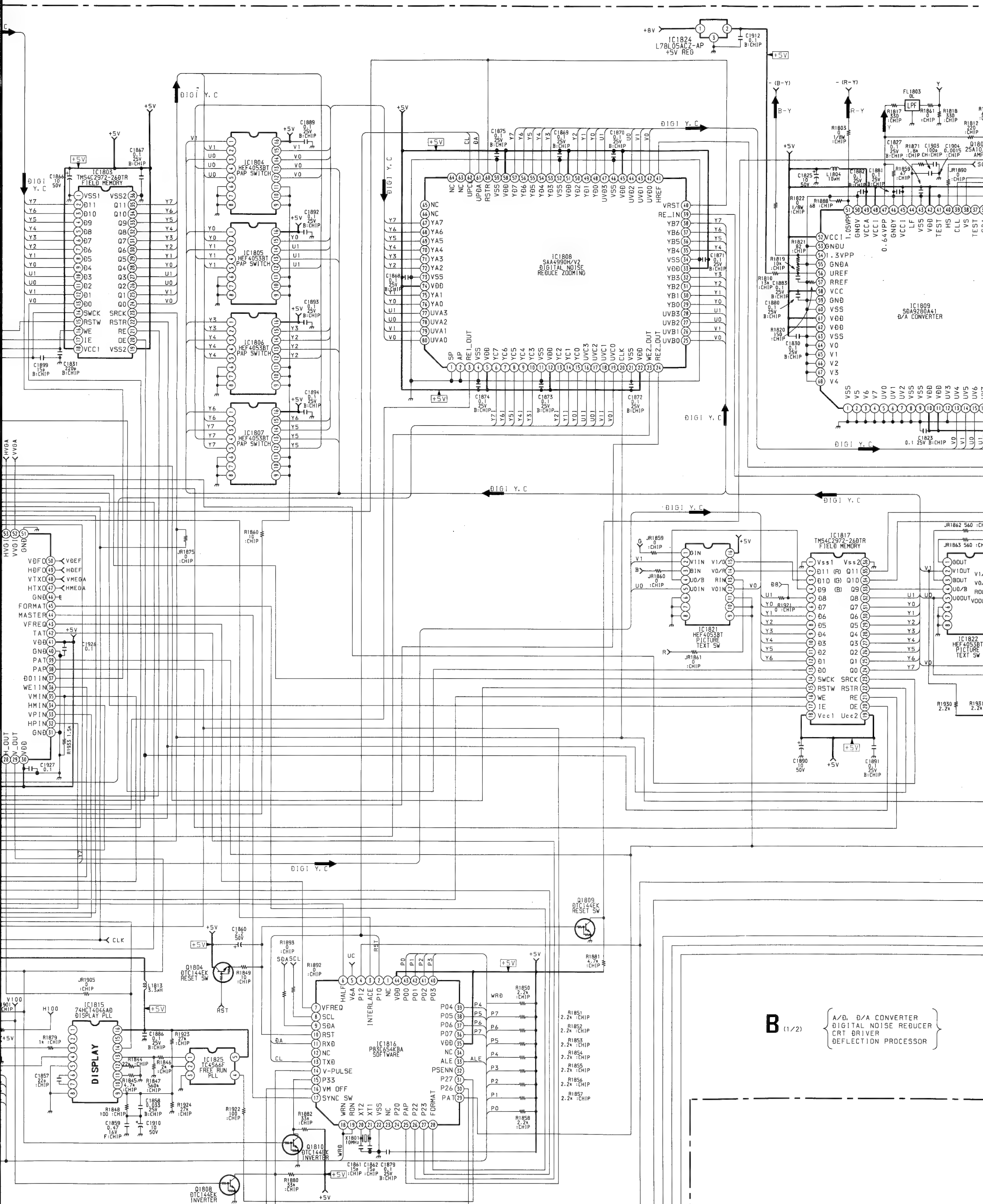
IC Voltage Table								
Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)	Ref No	Pin No	Voltage (V)
IC1	2	1.4	IC7	23	1.7	IC10	1	0.1
	3	4.0		24-27	1.3		2	2.0
	4	0.3		29	0.4		3	1.5
	5	4.0		36-37	4.8		4-5	2.0
	7	4.0		38	1.3		6	1.6
	8-9	1.6		39	1.5		7	2.2
	11-12	1.6		40	4.7		9	2.0
	14	4.0		47	2.0		10	1.5
	16	3.8		48	4.7		11-12	2.0
	18	1.5		49	0.6		13	1.5
IC5	20	4.8		50	4.7		14	2.5
	1	0.1		51	1.0		16	4.8
	2	1.2		53	1.0	IC11	1	0.1
	3	0.1		54	4.7		2	1.9
	4	4.0		55	1.0		3	1.4
	5	2.0		56	4.7		4-5	1.9
	6	0.1		57	3.7		6	1.4
	7	2.1		63-64	1.3		7	2.0
	9	2.0	IC9	1	0.1		9	2.1
	10	0.1		2	0.4		10	1.5
	11	2.0		3	1.0		11-12	2.0
	12	2.0		4	0.2		13	1.4
	13	0.1		5	3.8		14	2.0
	14	2.3		6	2.7		16	4.8
	16	4.8		7	3.0	IC12	1	0.1
IC7	2-5	0.4		9	4.3		2	1.6
	6	0.1		10	1.1		3	2.0
	7	0.5		11	2.1		4	1.7
	9-11	1.2		12-13	0.1		5	2.1
	12	1.3		16	4.8		6	1.4
	14-15	1.4					7	1.7
	16	0.7					9-11	0.9
	17-18	0.5					12-13	1.0
	20	0.8					14	1.2
	21-22	1.4					16	4.8

B Board < Conductor Side >

IC		TRANSISTOR	
IC402	C-6	Q411	C-4
IC403	D-20	Q412	C-5
IC405	B-9	Q415	A-19
IC406	E-6	Q416	B-20
IC1801	G-13	Q1801	C-8
IC1803	I-17	Q1802	D-8
IC1804	G-9	Q1804	I-2
IC1805	G-8	Q1805	H-10
IC1806	G-18	Q1807	B-12
IC1807	G-7	Q1808	H-2
IC1808	H-19	Q1809	E-7
IC1809	E-15	Q1810	I-23
IC1810	I-21	Q1812	C-8
IC1811	D-9	Q1813	F-20
IC1812	F-24	DIODE	
IC1813	J-3	D401	D-5
IC1814	F-21	D402	C-3
IC1815	H-2	D403	C-3
IC1816	H-22	D410	B-20
IC1817	E-19	D411	A-21
IC1819	I-5	D412	A-20
IC1821	F-5	D414	C-9
IC1822	G-4	D415	B-7
IC1823	F-1		
IC1824	C-10		
IC1825	H-2		
IC1831	E-11		

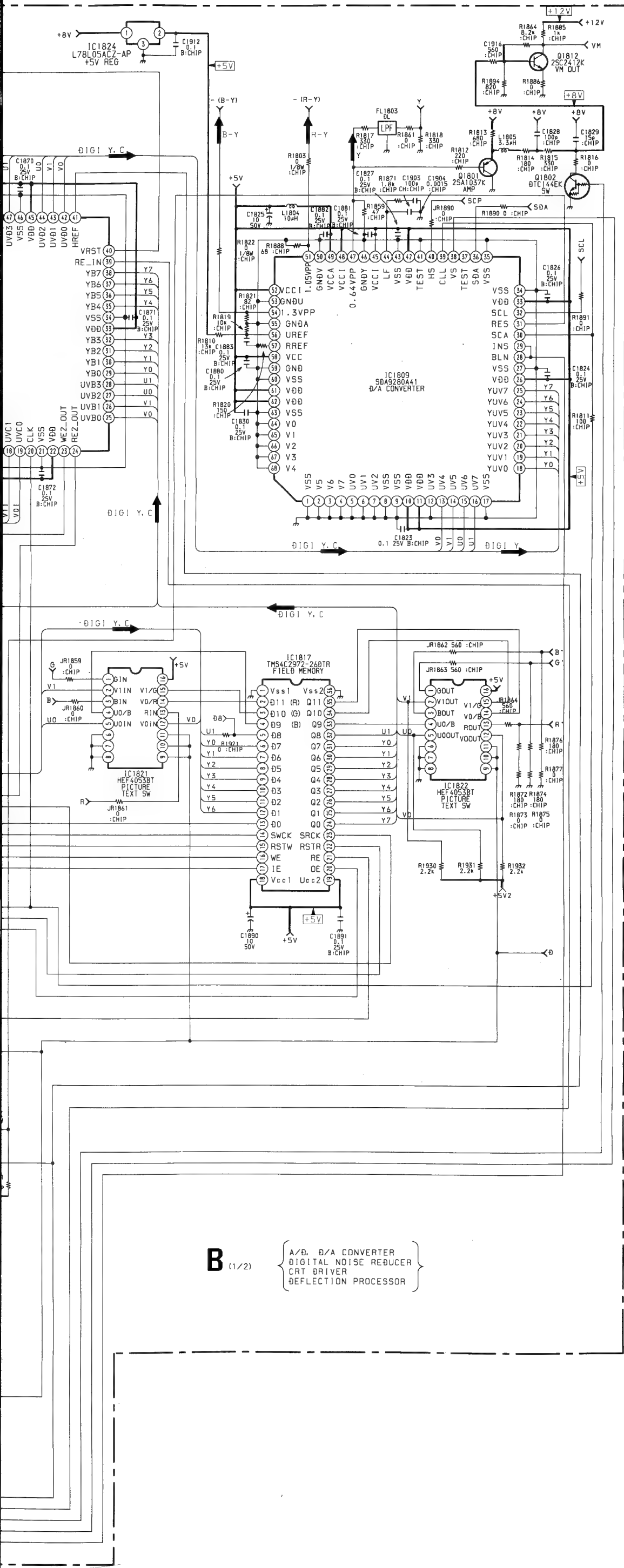






B (1/2)

A/D, D/A CONVERTER
DIGITAL NOISE REDUCER
CRT DRIVER
DEFLECTION PROCESSOR



B BOARD * MARK

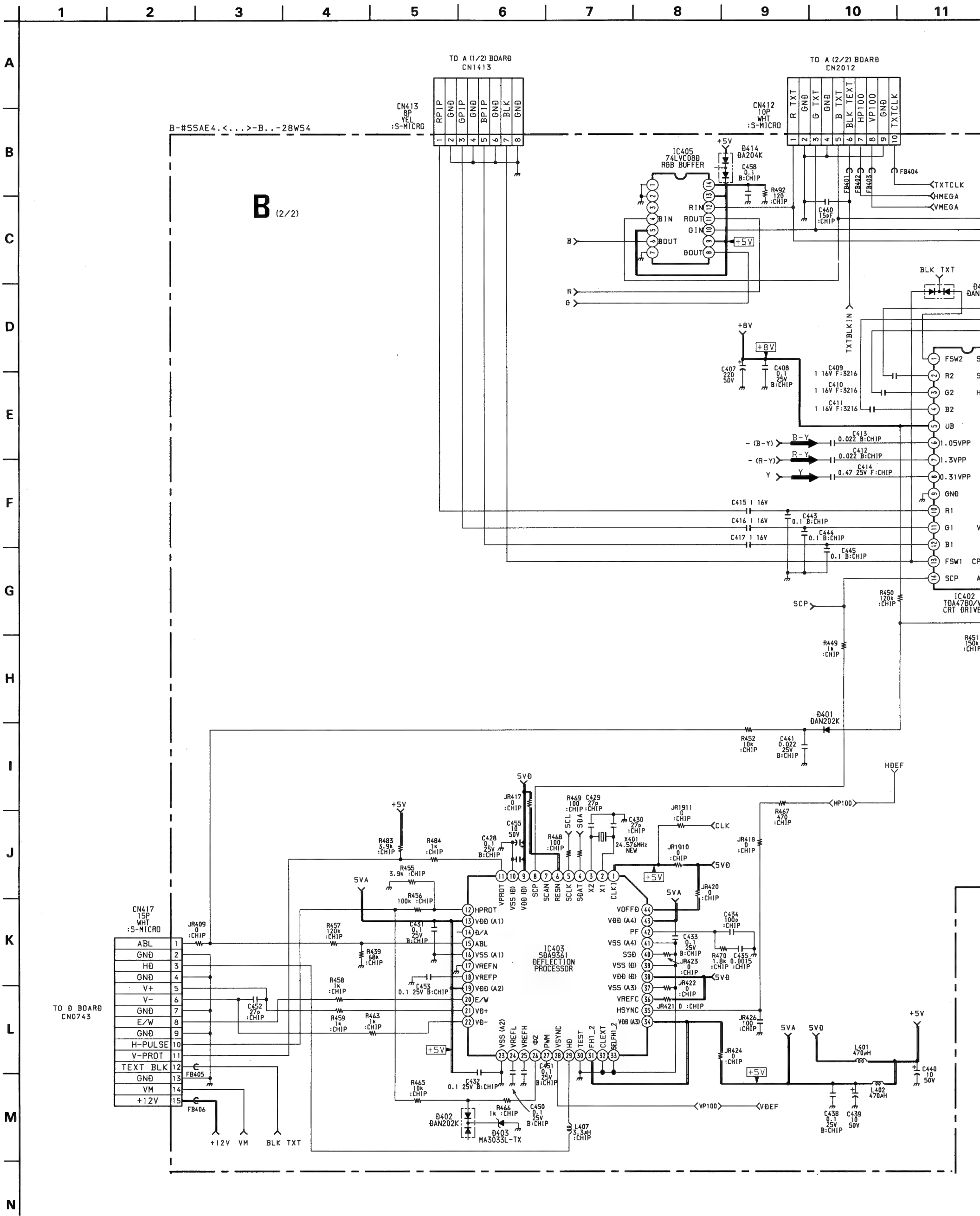
Model	28WS4A	28WS4B	28WS4D	28WS4E	28WS4K	28WS4R
Ref. No.						
JR1801	—	0:CHIP	—	—	—	—
JR1802	—	0:CHIP	—	—	—	—
JR1803	—	0:CHIP	—	—	—	—
JR1804	—	0:CHIP	—	—	—	—
JR1805	—	0:CHIP	—	—	—	—
JR1806	—	0:CHIP	—	—	—	—
JR1807	—	0:CHIP	—	—	—	—
JR1808	—	0:CHIP	—	—	—	—
JR1809	—	0:CHIP	—	—	—	—
JR1810	—	0:CHIP	—	—	—	—
JR1811	—	0:CHIP	—	—	—	—
JR1812	—	0:CHIP	—	—	—	—
JR1843	—	0:CHIP	—	—	—	—
JR1893	0:CHIP	—	0:CHIP	0:CHIP	0:CHIP	0:CHIP

B (1/2) BOARD
IC VOLTAGE TABLE

IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC1812	3-4	2.4
	6-7	0.7
	9	4.6
	11-13	4.7
	14	0.3
IC1813	16	5.0
	3-4	2.4
	6-7	0.7
	9	4.6
	11-13	4.7
IC1815	14	0.3
	16	5.0
	1	5.0
	2	2.3
	3-4	2.5
IC1821	6-7	0.8
	9-11	3.0
	12	4.5
	13	3.0
	14	0.4
IC1822	15	0.2
	16	5.2
	2	2.5
	4-5	2.3
	12	2.0

B BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q411	0.1	4.8	4.8
Q412	0.1	4.8	4.8
Q415	1.8	0.1	-
Q416	0.1	5.6	-
Q1801	0.1	-	0.9
Q1802	4.0	0.1	0.1
Q1804	0.3	4.8	0.1
Q1805	2.5	1.3	0.7
Q1807	2.5	1.3	0.7
Q1808	0.1	4.7	0.1
Q1809	0.1	0.1	0.1
Q1810	0.1	4.8	-
Q1812	0.5	10.5	-
Q1813	0.1	3.7	0.1





IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC402	2-4	5.0
	5	7.8
	6-7	4.0
	8	3.7
	10-12	5.0
	14	0.7
	16	4.7
	17	5.1
	18	1.8
	19	7.5
	20	2.5
	21	3.3
	22	2.8
	23	3.3
	24	2.9
IC405	5	3.2
	9	3.2
	13-14	3.2
IC406	16	4.8

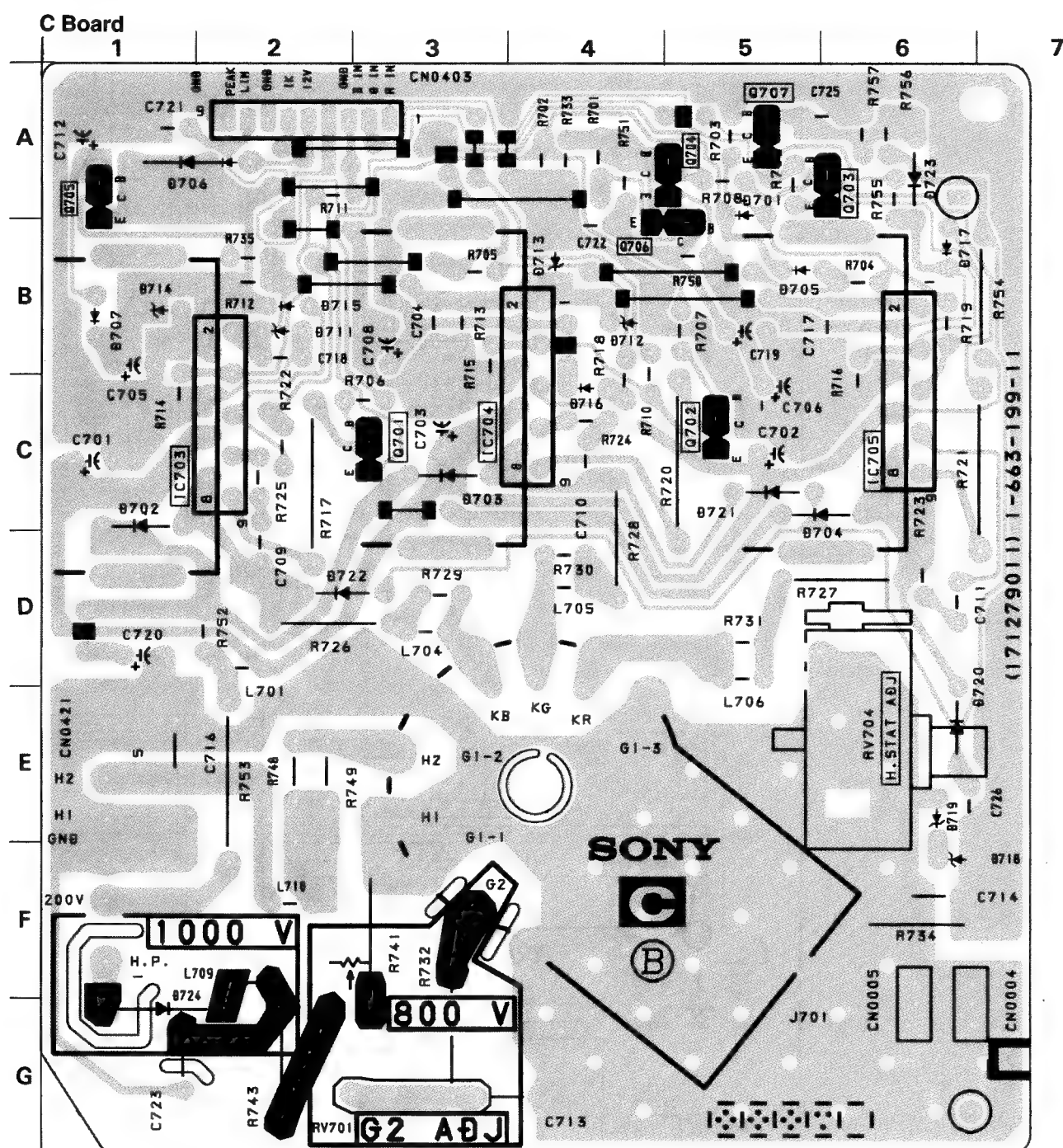
0416
25C2412K
CUT-OFF

5
A-T146
OFF

**B (2/2) BOARD
IC VOLTAGE TABLE**

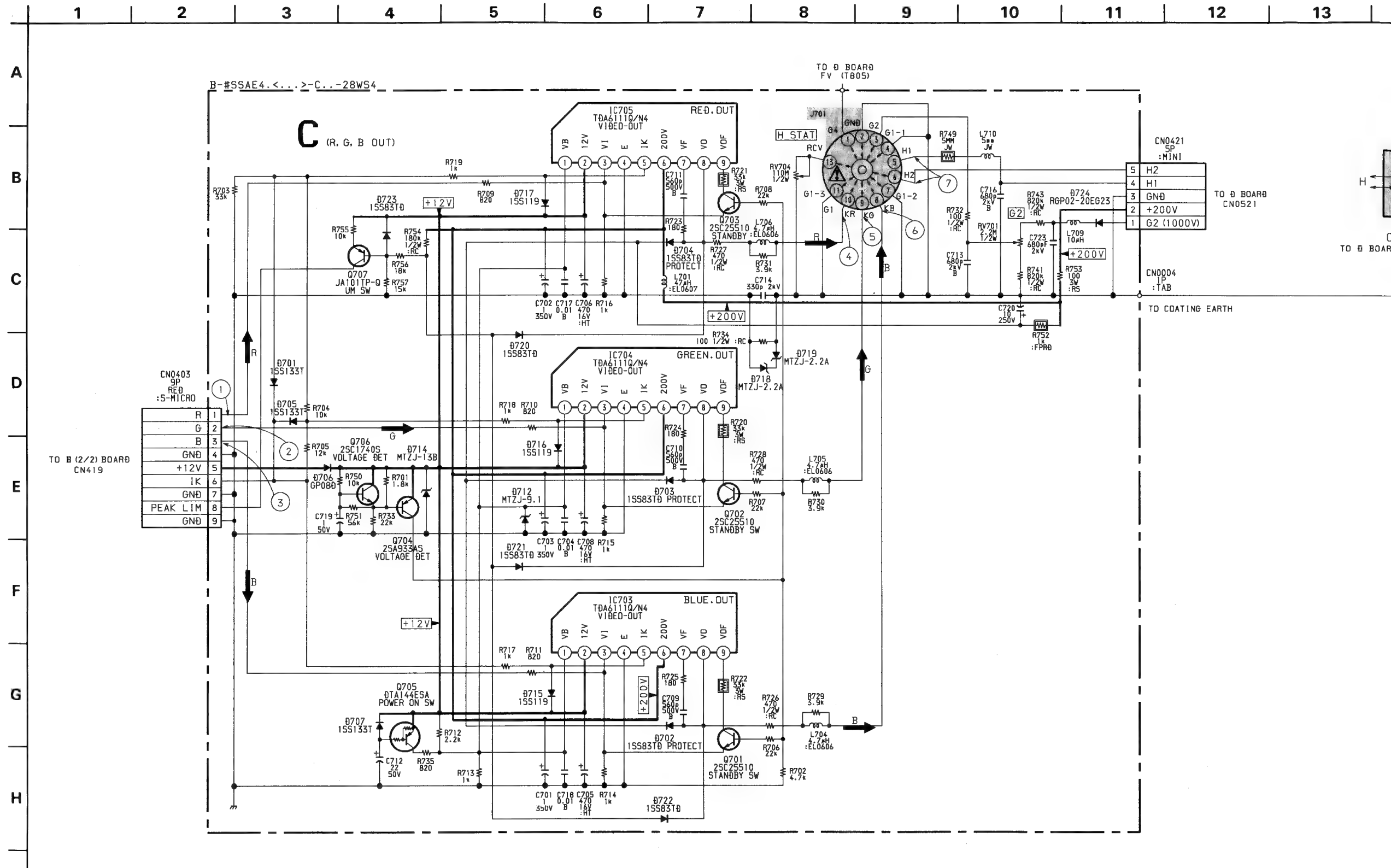
IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC402	2-4	5.0
	5	7.8
	6-7	4.0
	8	3.7
	10-12	5.0
	14	0.7
	16	4.7
	17	5.1
	18	1.8
	19	7.5
	20	2.5
	21	3.3
	22	2.8
	23	3.3
IC405	24	2.9
	25	3.3
	27	4.0
IC406	28	3.8
	5	3.2
IC405	9	3.2
	13-14	3.2
IC406	16	4.8

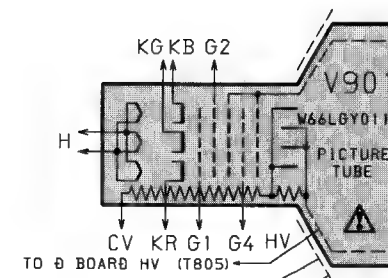
C [RGB OUT]










C BOARD

IC	
IC703	C-1
IC704	C-3
IC705	C-6
TRANSISTOR	
Q701	C-3
Q702	C-5
Q703	A-6
Q704	A-5
Q705	A-1
Q706	B-4
Q707	A-5
DIODE	
D701	A-5
D702	C-1
D703	C-3
D704	C-6
D705	B-5
D706	A-1
D707	B-1
D712	B-4
D714	B-1
D715	B-2
D716	C-4
D717	B-6
D718	F-6
D719	E-6
D720	E-6
D721	C-5
D722	D-2
D723	A-6
D724	F-1
VARIABLE	
RESISTOR	
RV701	G-1
RV704	E-6

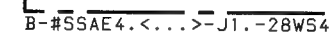


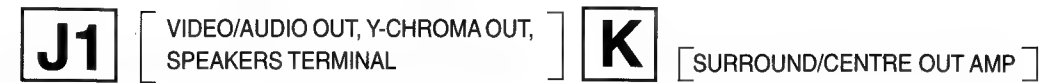
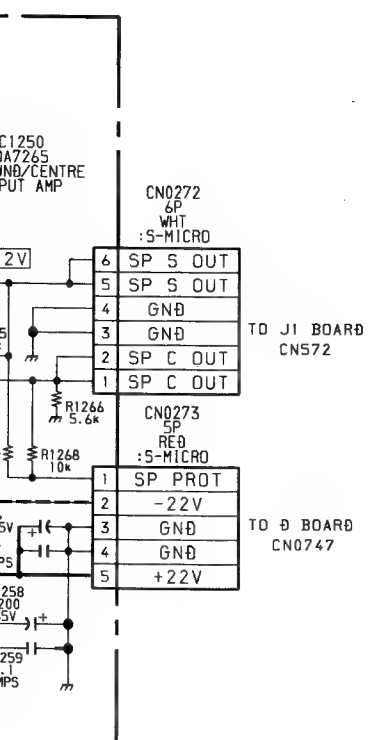
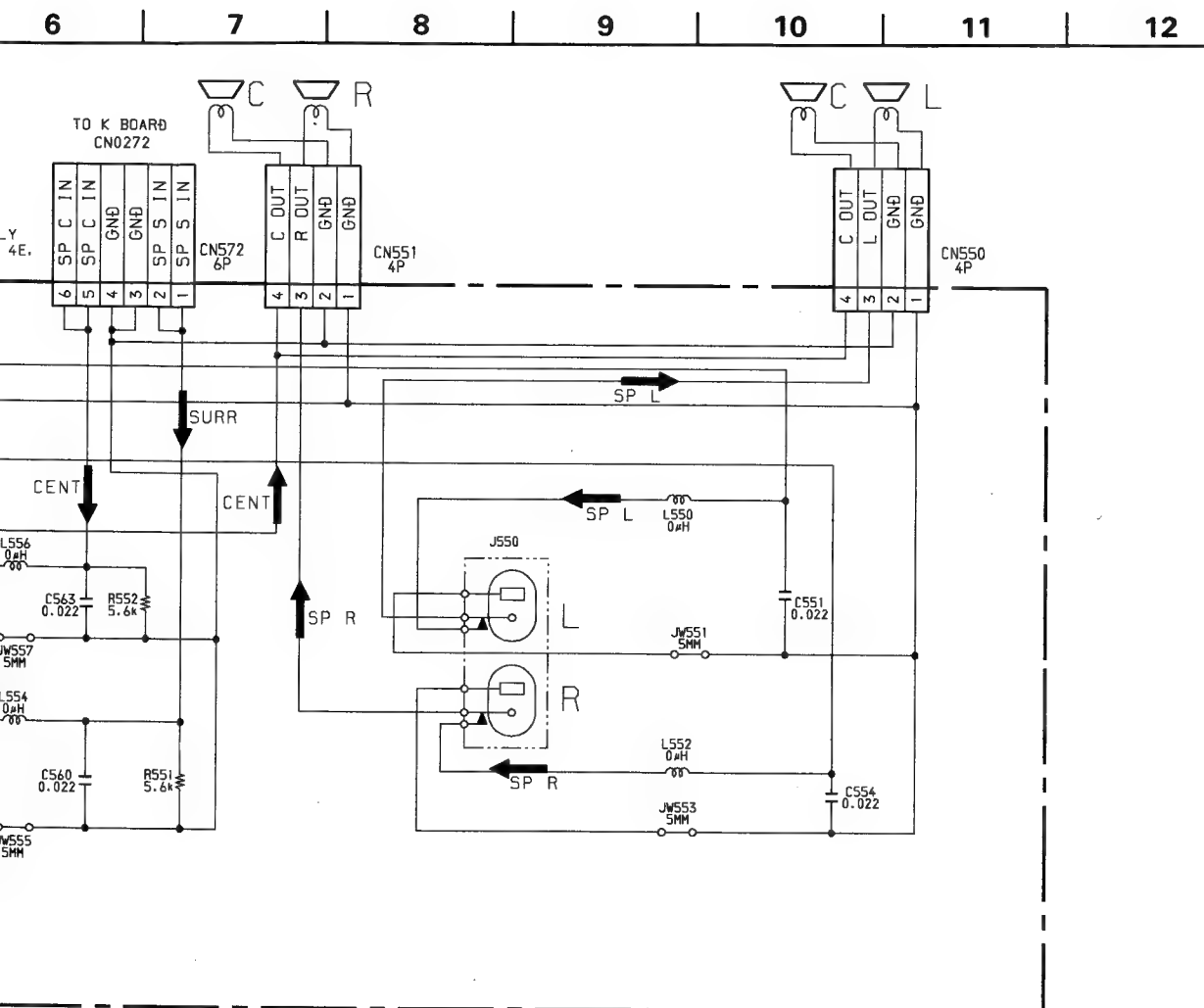


<p>①</p>  <p>2.0 Vp-p (2H)</p>	<p>②</p>  <p>2.0 Vp-p (2H)</p>	<p>③</p>  <p>2.0 Vp-p (2H)</p>
<p>④</p>  <p>107 Vp-p (2H)</p>	<p>⑤</p>  <p>95 Vp-p (2H)</p>	<p>⑥</p>  <p>100 Vp-p (2H)</p>
<p>⑦</p>  <p>30 Vp-p (2H)</p>		

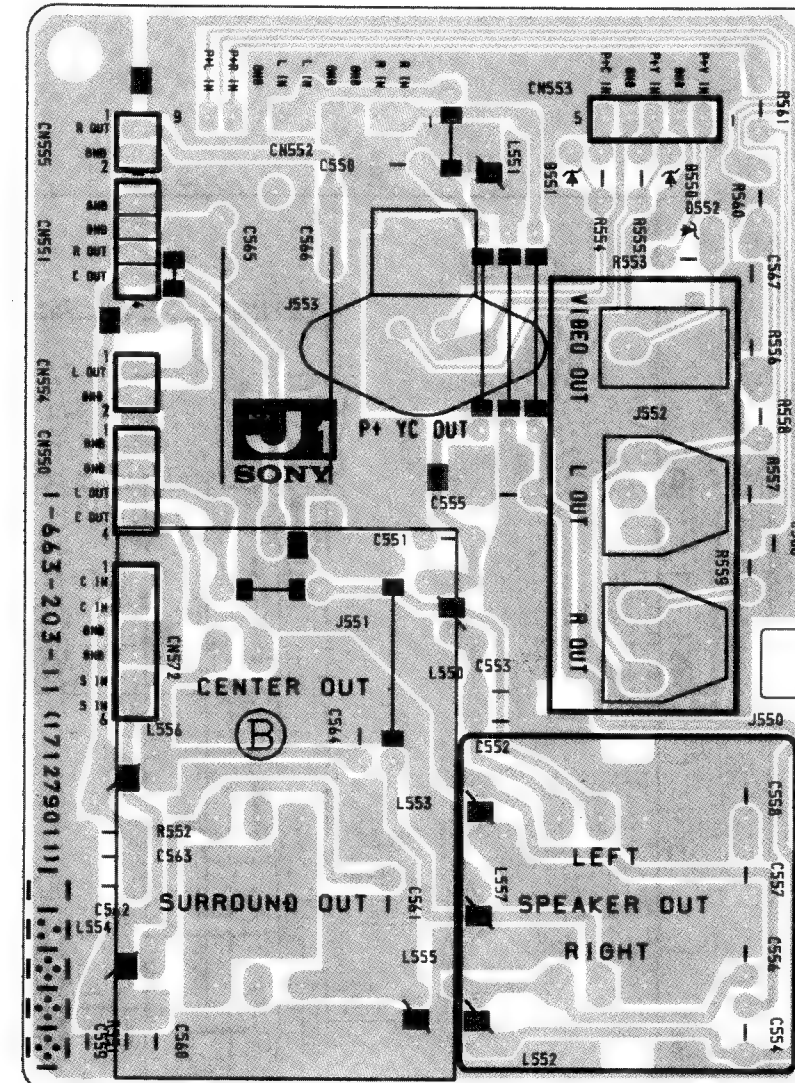
IC Voltage Table		
Ref No	Pin No	Voltage (V)
IC703	1	3.6
	2	11.4
	3	3.6
	5	7.5
	6	195.0
	7	102.0
	8	104.0
	9	101.0
IC703	1	3.6
	2	11.4
	3	3.6
	5	7.5
	6	195.0
	7	103.0
	8	107.0
IC703	9	102.0
	1	3.6
	2	11.4
	3	3.6
	5	6.4
	6	195.0
	7	97.0
	8	100.0
9	96.8	

Ref No	B Base	C Collector	E Emitter
Q701	4.2	3.7	3.6
Q702	4.2	3.7	3.6
Q703	4.2	3.7	3.6
Q704	10.7	11.2	11.3
Q705	11.3	3.6	11.3
Q706	11.3	11.3	10.7
Q707	11.8	9.8	11.3

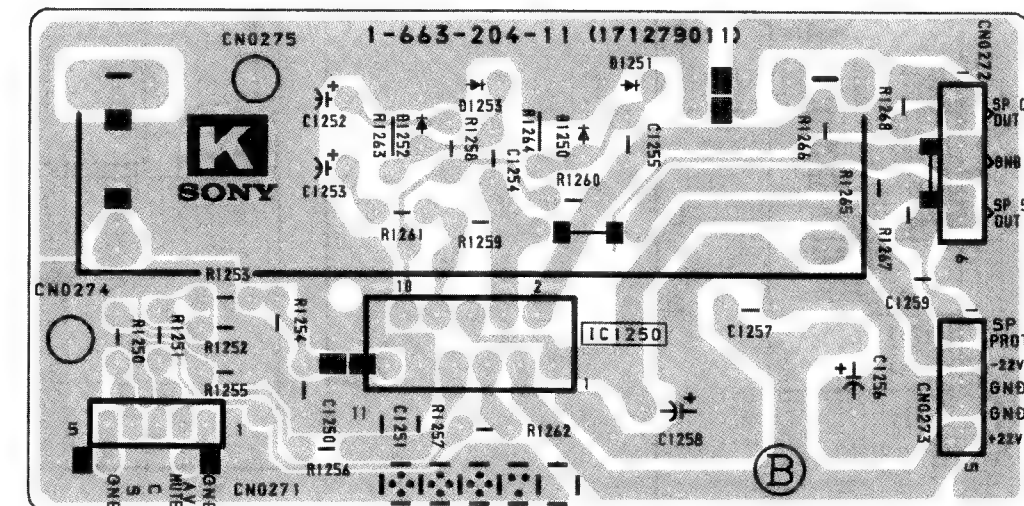


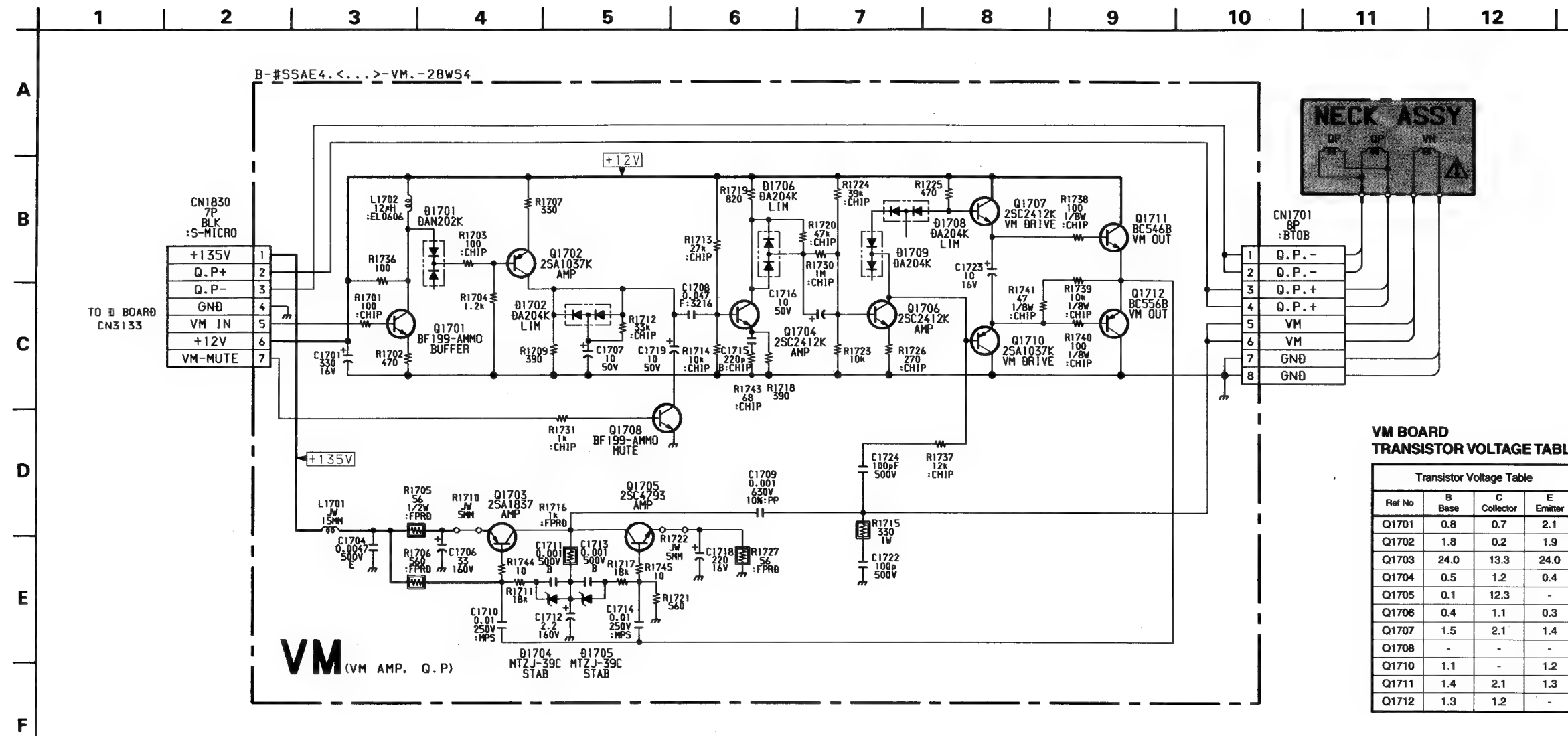


J1 Board



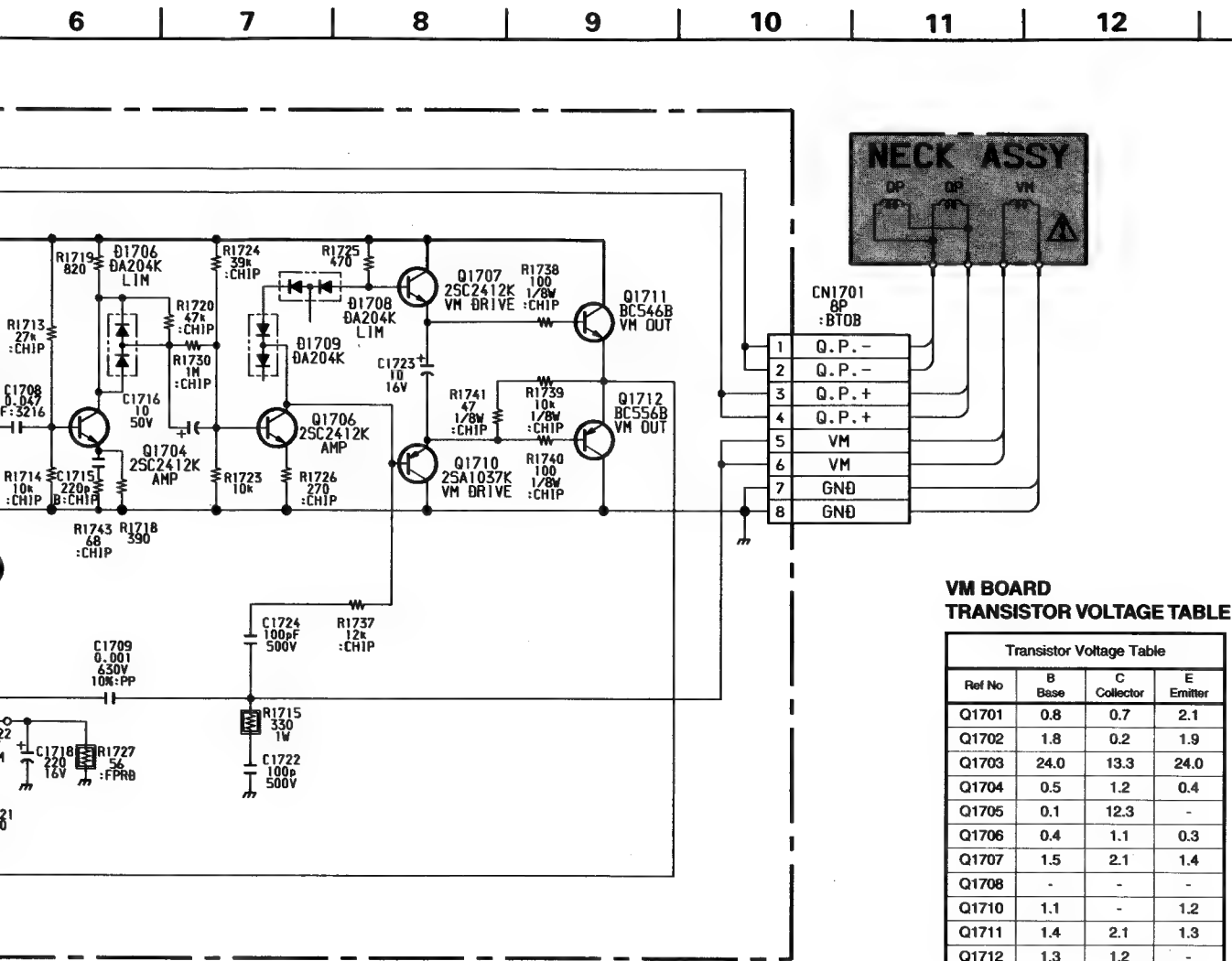
K Board





VM BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1701	0.8	0.7	2.1
Q1702	1.8	0.2	1.9
Q1703	24.0	13.3	24.0
Q1704	0.5	1.2	0.4
Q1705	0.1	12.3	-
Q1706	0.4	1.1	0.3
Q1707	1.5	2.1	1.4
Q1708	-	-	-
Q1710	1.1	-	1.2
Q1711	1.4	2.1	1.3
Q1712	1.3	1.2	-

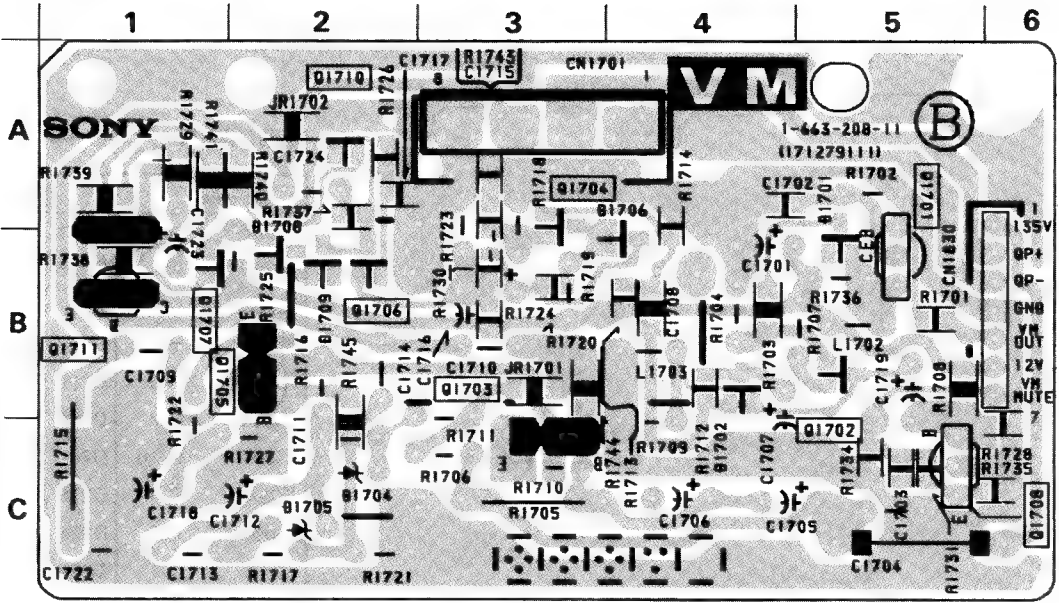


VM BOARD
TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q1701	0.8	0.7	2.1
Q1702	1.8	0.2	1.9
Q1703	24.0	13.3	24.0
Q1704	0.5	1.2	0.4
Q1705	0.1	12.3	-
Q1706	0.4	1.1	0.3
Q1707	1.5	2.1	1.4
Q1708	-	-	-
Q1710	1.1	-	1.2
Q1711	1.4	2.1	1.3
Q1712	1.3	1.2	-

VM [VM OUT, Q.P.]

VM Board



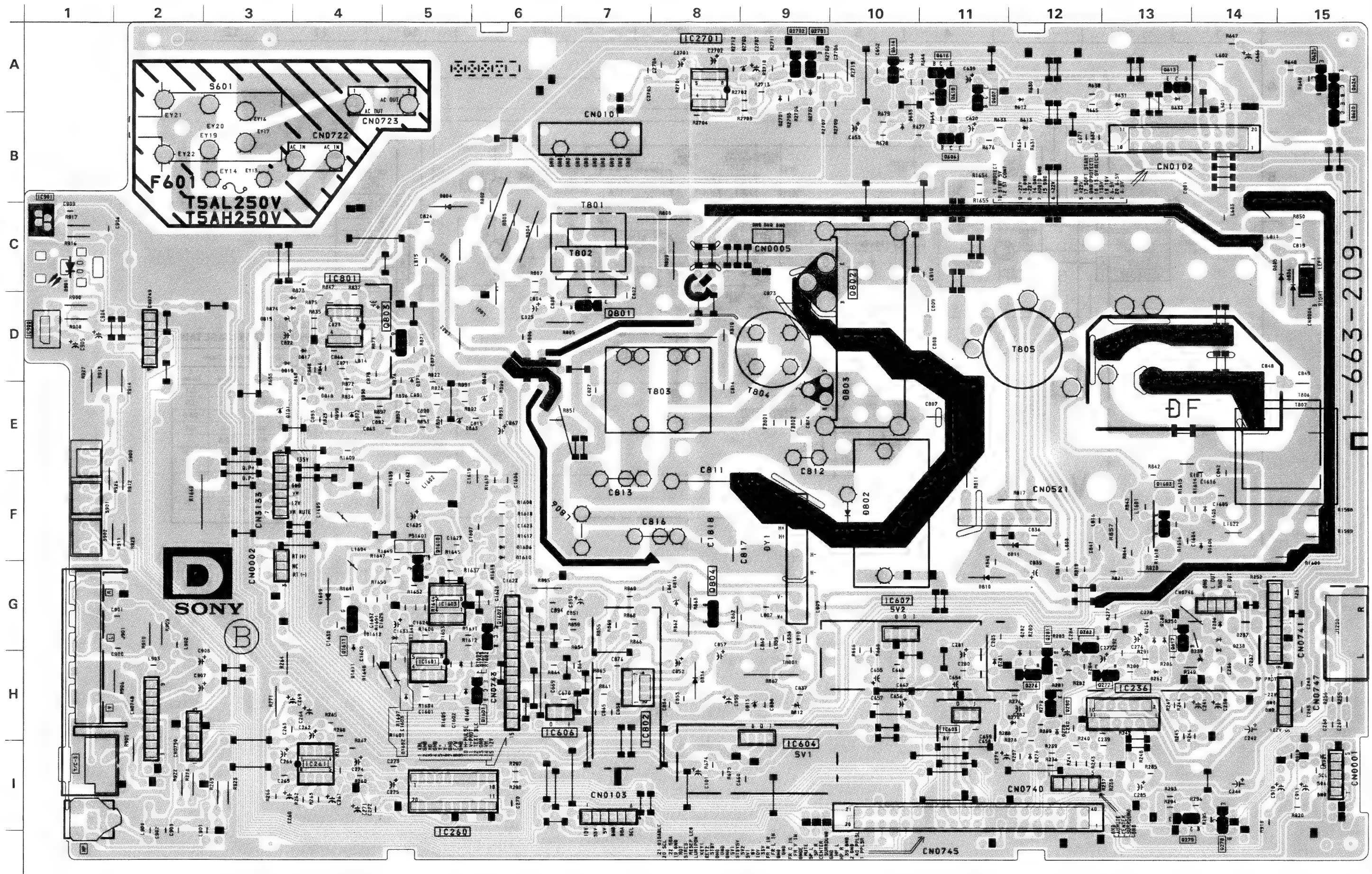
VM BOARD

TRANSISTOR	
Q1701	A-5
Q1702	C-5
Q1703	B-3
Q1704	A-3
Q1705	B-2
Q1706	B-2
Q1707	B-1
Q1708	C-6
Q1710	A-2
Q1711	B-1
Q1712	A-1
DIODE	
D1701	A-5
D1702	C-4
D1704	C-2
D1705	C-2
D1706	A-4
D1708	B-2
D1709	B-2

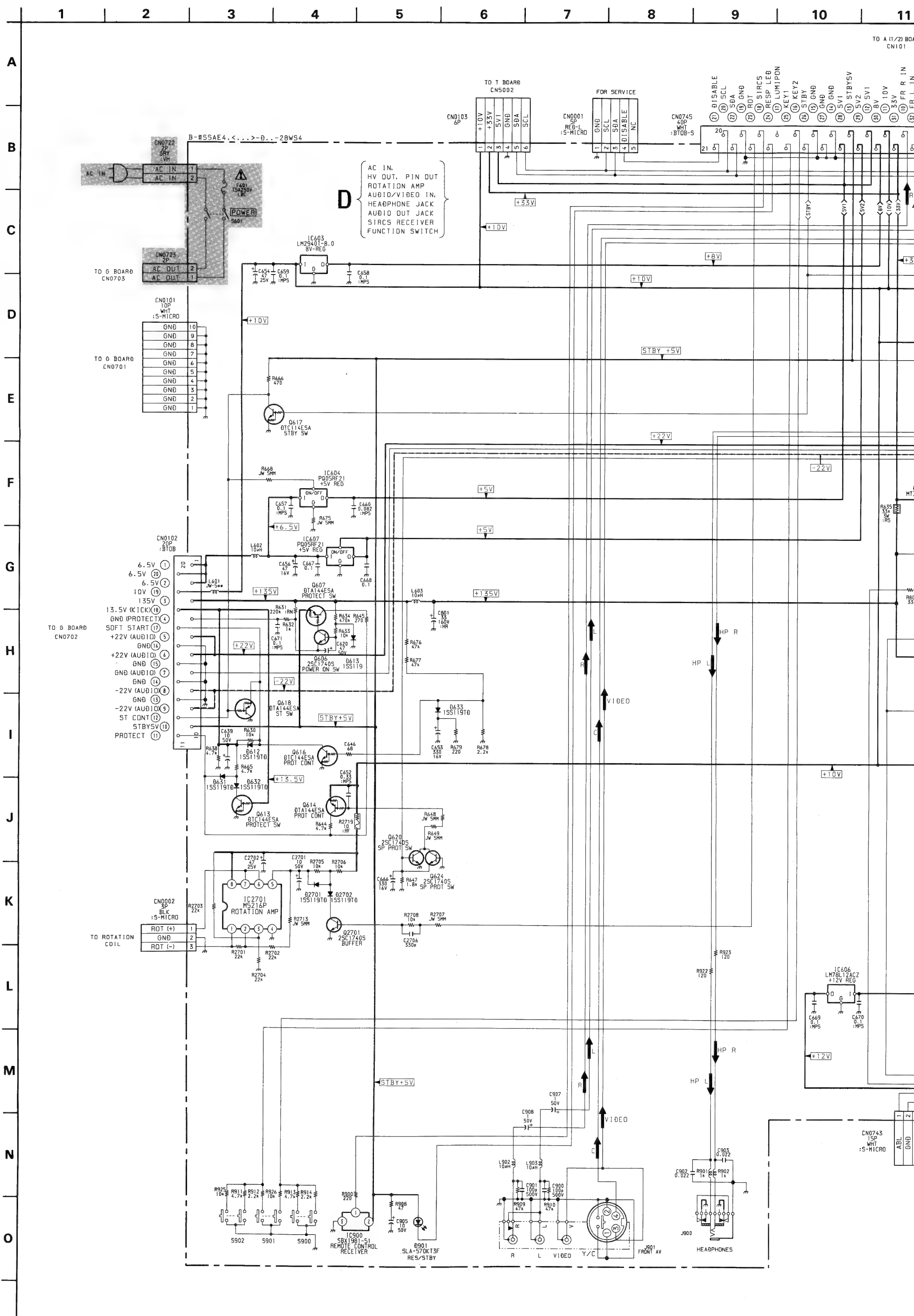
HV OUT, PIN OU, POWER SUPPLY, CONTROL SW, AUDIO IN,
Y-CHROMA IN, HEADPHONE IN, SIRCS RECEIVE, INDICATOR

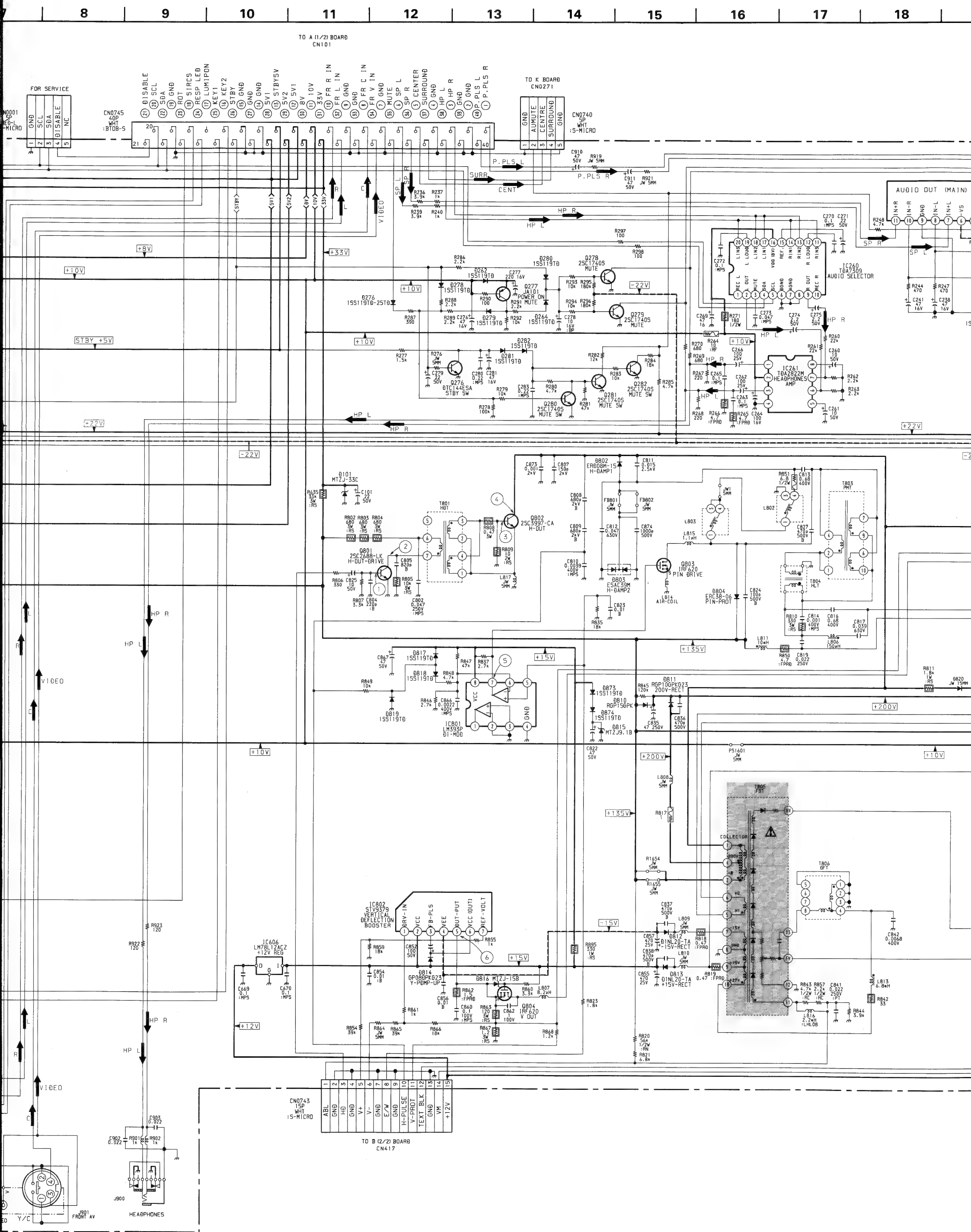
KV-28WS4

E-3
G-14
G-14
G-14
G-14
H-13
G-13
I-12
H-12
H-12
G-13
H-12
G-12
A-12
B-12
A-13
A-14
B-11
F-10
E-10
B-5
C-15
C-15
G-11
F-12
H-9
H-9
H-8
D-3
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D-4
D-3
C-1
G-4
H-4
A-9
A-9

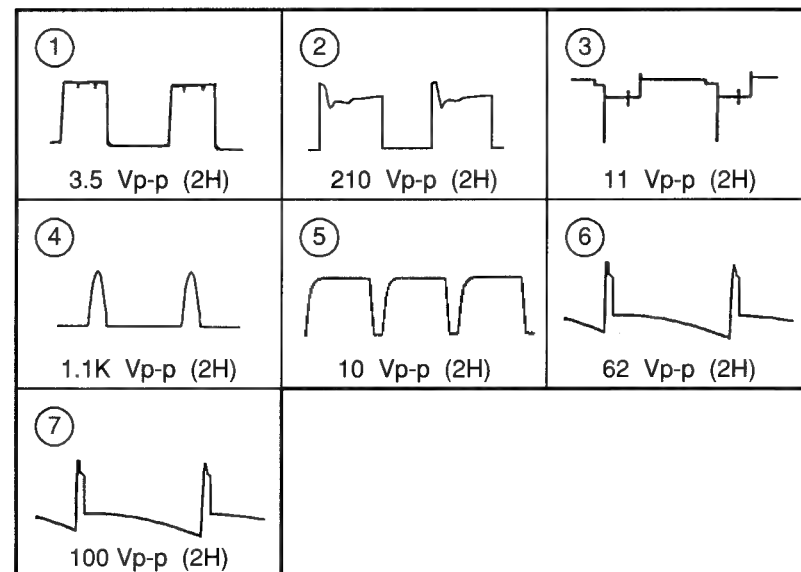
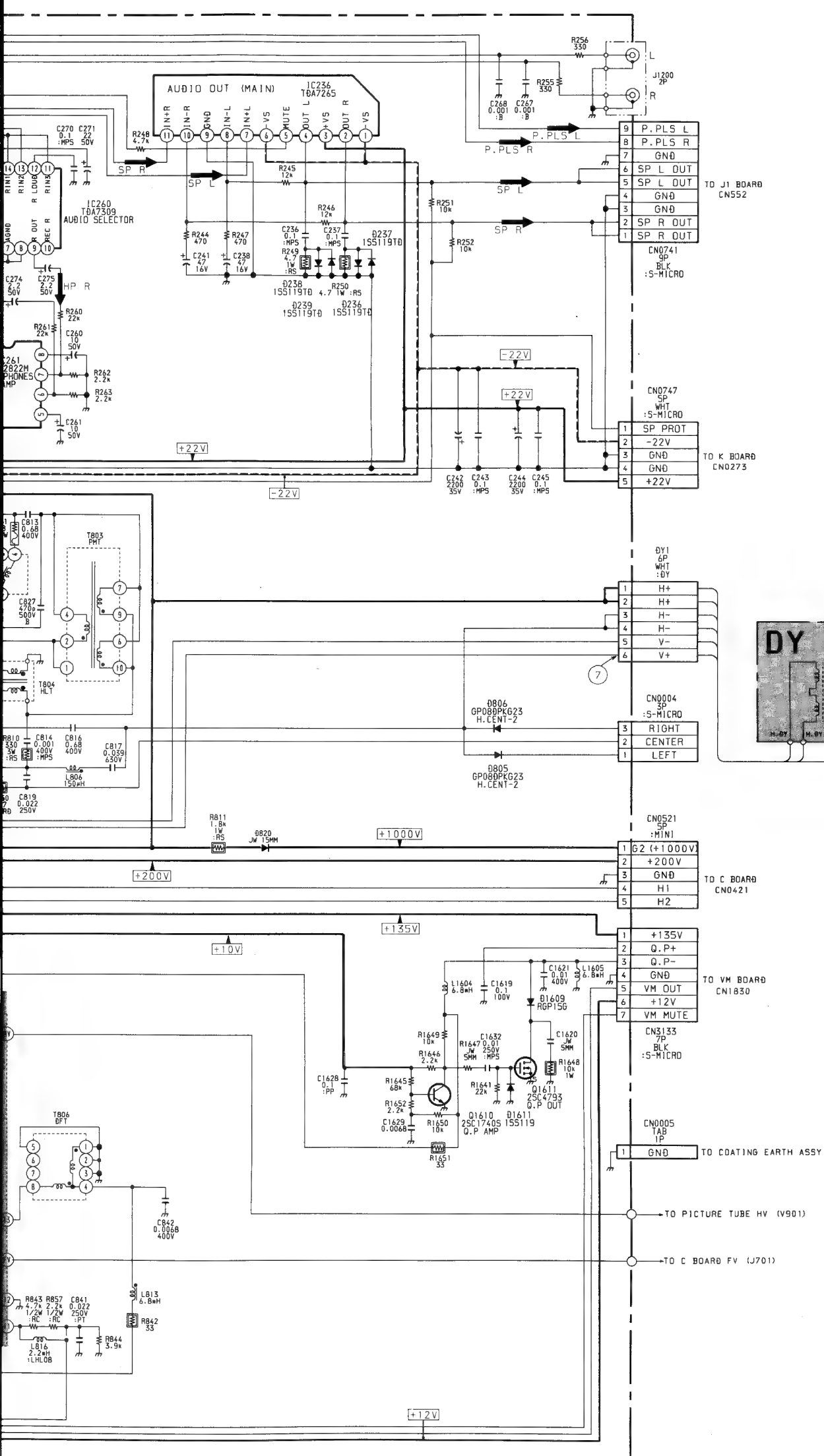


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WAVEFORMS D BOARD

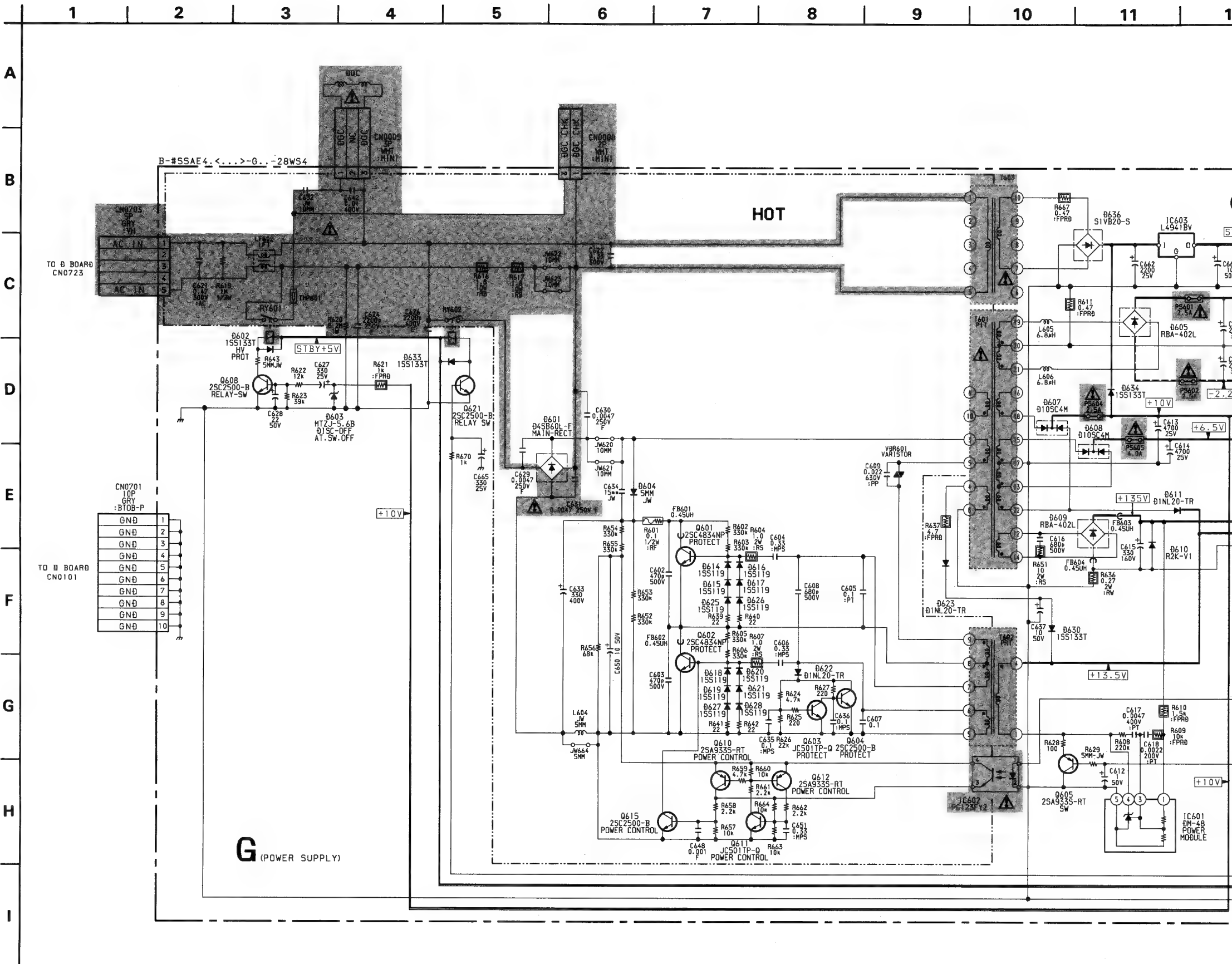


D BOARD TRANSISTOR VOLTAGE TABLE

Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q276	0.7	4.0	-
Q277	10.0	-	9.7
Q278	-1.3	-	-
Q279	-1.3	-	-1.3
Q280	0.4	0.7	-
Q281	0.7	-	-
Q282	0.7	-	-
Q801	-1.0	101.0	-
Q802	-	136.0	-
Q803	9.0	15.0	-
Q804	11.3	0.1	-1.3
Q606	0.5	4.8	0.3
Q607	4.8	1.6	4.8
Q613	13.5	-	-
Q614	10.0	9.0	10.0
Q616	0.7	-	-
Q617	0.7	3.5	-
Q618	3.5	-	-
Q620	-	10.0	-
Q624	-	10.0	-
Q2701	-	2.3	-
Q1610	-0.5	2.2	-
Q1611	0.2	43.4	-

G BOARD
TRANSISTOR VOLTAGE

Ref No	B Base	C Collect
Q601	-1.6	-
Q602	0.2	293.1
Q603	0.6	0.1
Q604	0.1	1.4
Q605	0.1	11.0
Q608	-	4.8
Q610	22.0	-2.3
Q611	-1.6	26.6
Q612	26.7	-1.1
Q615	-2.6	-1.5
Q621	0.6	-



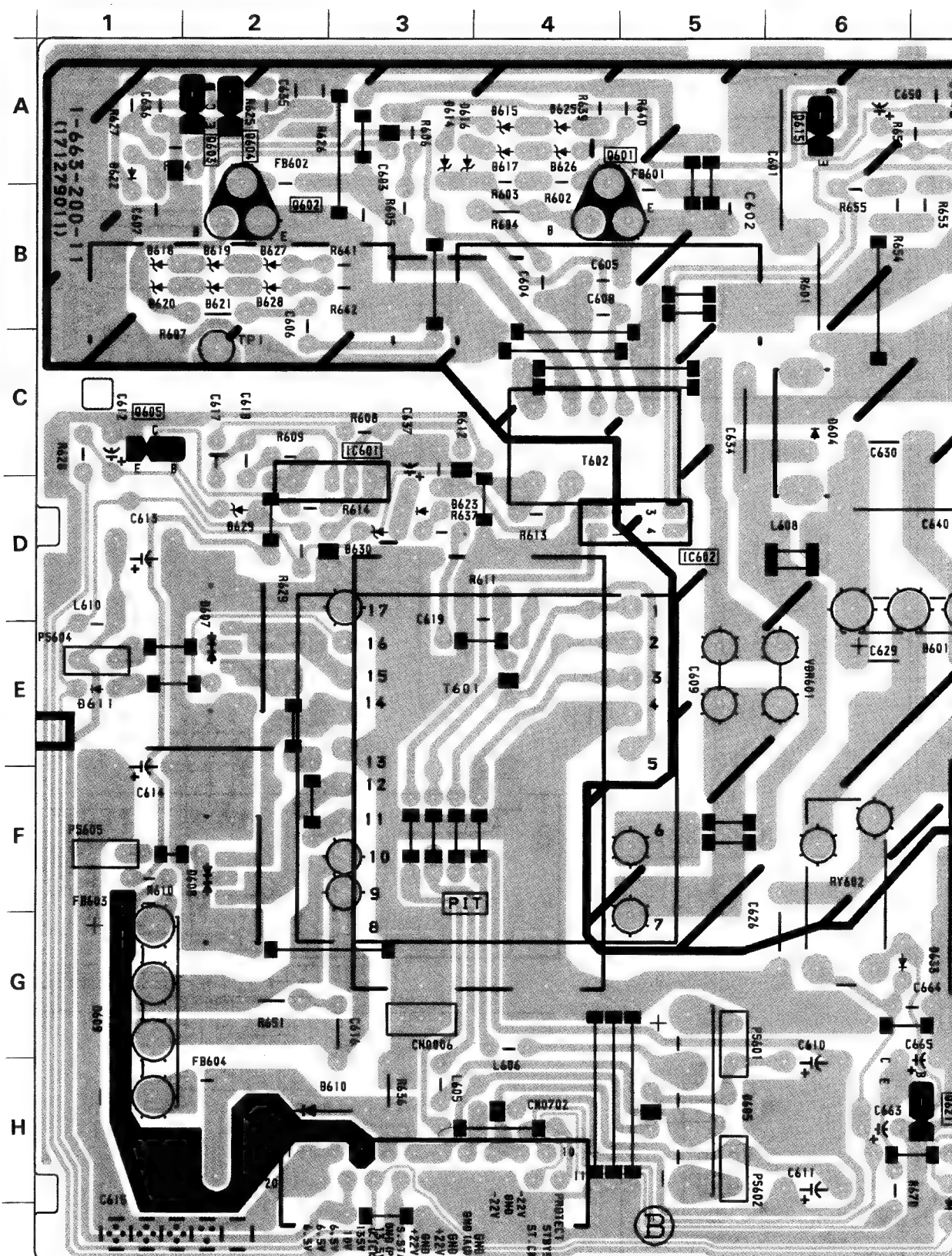
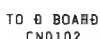
Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q601	-1.6	-	-
Q602	0.2	293.0	-
Q603	0.6	0.1	-
Q604	0.1	1.4	-
Q605	0.1	11.0	-0.1
Q608	-	4.8	-0.1
Q610	22.0	-2.3	26.8
Q611	-1.6	26.6	-
Q612	26.7	-1.1	26.8
Q615	-2.6	-1.5	-
Q621	0.6	-	-0.1

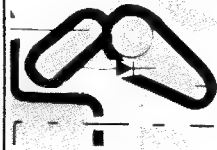
Transistor Voltage Table			
Ref No	B Base	C Collector	E Emitter
Q601	-1.6	-	-
Q602	0.2	293.0	-
Q603	0.6	0.1	-
Q604	0.1	1.4	-
Q605	0.1	11.0	-0.1
Q608	-	4.8	-0.1
Q610	22.0	-2.3	26.8
Q611	-1.6	26.6	-
Q612	26.7	-1.1	26.8
Q615	-2.6	-1.5	-
Q621	0.6	-	-0.1

G

POWER SUPPLY 7

G Board



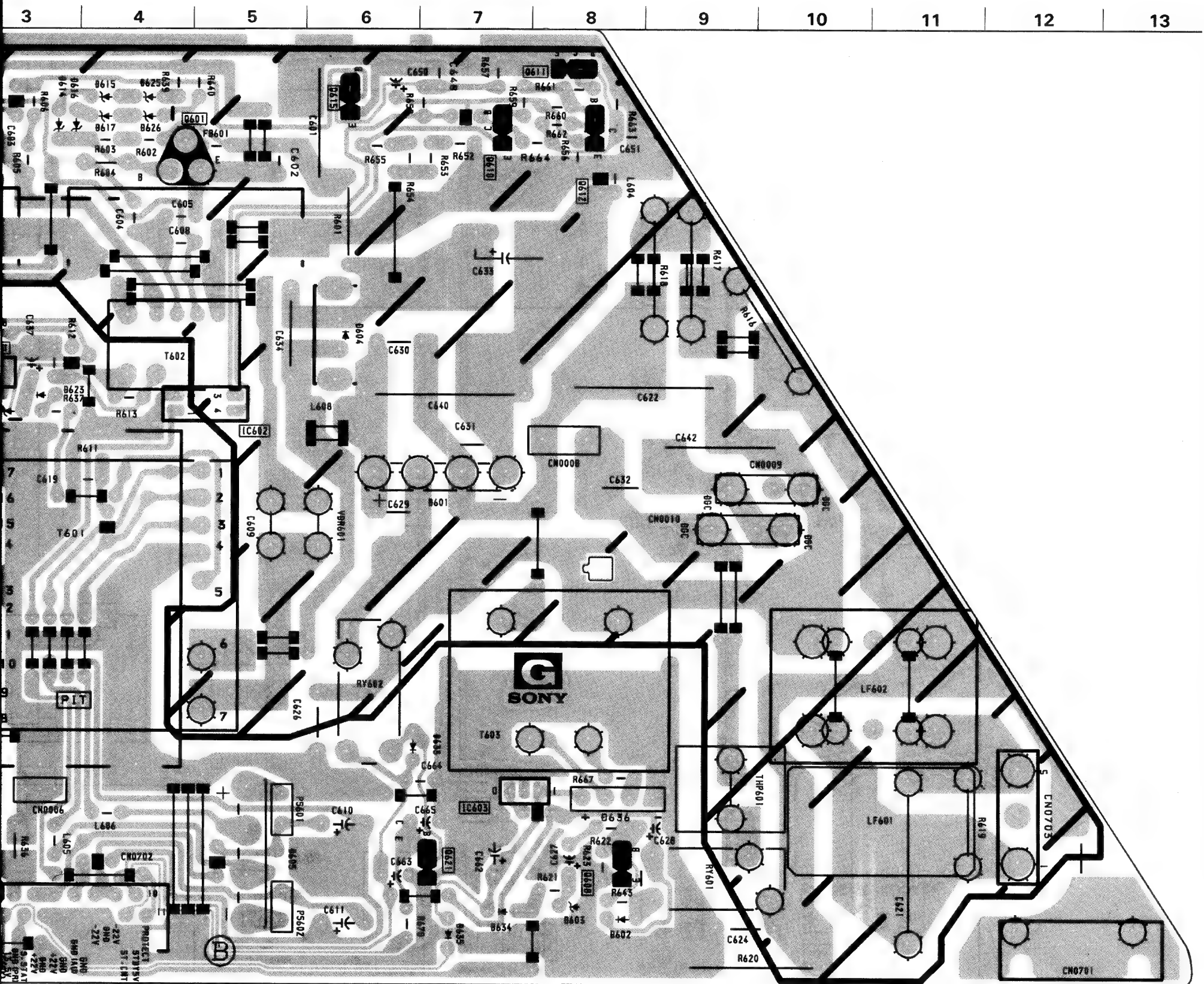


NOTE:

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

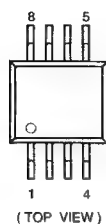
G BOARD

IC	
IC601	C-3
IC602	D-5
IC603	G-7
TRANSISTOR	
Q601	A-5
Q602	B-2
Q603	B-2
Q604	B-2
Q605	C-1
Q608	H-8
Q610	B-7
Q611	A-8
Q612	B-8
Q615	A-6
Q621	H-7
DIODE	
D601	E-7
D602	H-8
D603	H-8
D605	H-5
D607	E-2
D608	F-2
D609	G-1
D610	H-3
D611	E-1
D614	A-3
D615	A-4
D616	A-3
D617	A-4
D618	B-1
D619	B-2
D620	B-1
D621	B-2
D622	A-1
D623	D-3
D625	A-4
D626	A-4
D627	B-2
D628	B-2
D630	D-3
D633	G-7
D634	H-7
D636	G-8

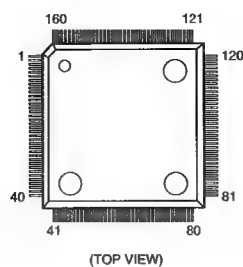


5-4. SEMICONDUCTORS

BA7046F
BA7046F-T1
MB3793-42PNF
MB3793-42PNF-ER
NJM2240M
NJM2240(Te2)



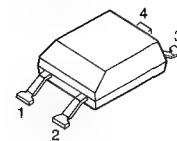
CXD8624Q



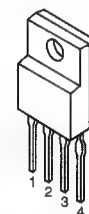
LM78L05ACZ
LM78L12ACZ
L78L05ACZ-AP
L78L12ACZ-AP



PC123F2
PC123FY2

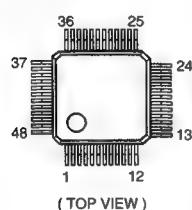


PQ05RF21

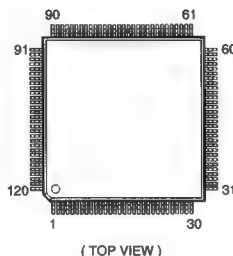


1: V IN
2: V OUT
3: GND
4: ON/OFF CONTROL

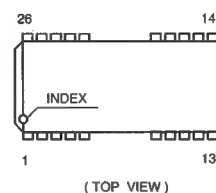
CXA1855Q-T6



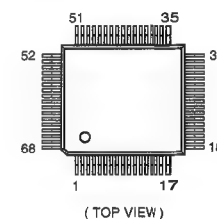
CXD8625Q



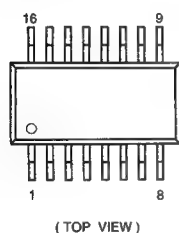
MB814400C-70PJN-ER



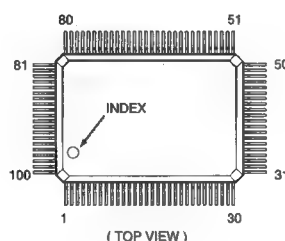
P83C654EBA/560
SDA9280A41



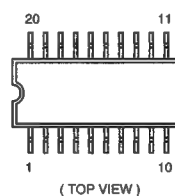
CXA1875AM-T4
HEF4053BT
MC14052BDR2
MC74F157ADR2
SN74LS33INS
74HCT4046AD



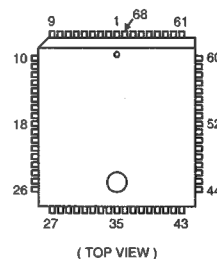
CXD8626Q



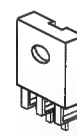
MC74F240DWR2



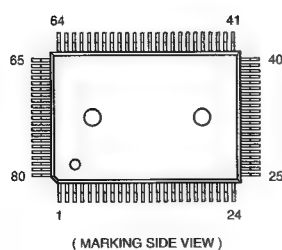
MSP3400C-PS-C6-T
MSP3410B-PS-F7-T-ND
SAA7185WP
SDA30C164-GEG
SDA5273P-C26-GEG
SDA5275



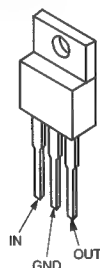
SBX1981-51



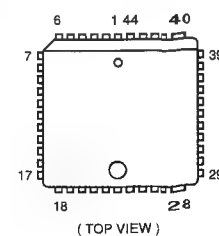
CXD2044Q
SAA4990H/V2



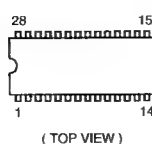
LM2940CT-9.0
LM2940T-8.0
L4941BV
TEA7605



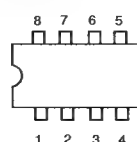
SAA4952WP/V1



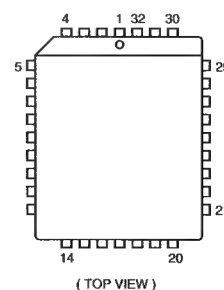
CXD2053S
TDA4780/V3



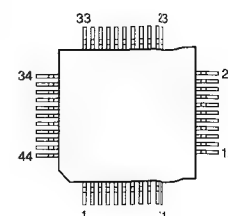
LM393P
M5216P
ST24C16FB6
TDA2822M
UPC393C



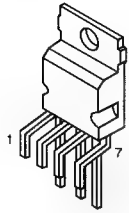
M27C4001-15C1-AE401



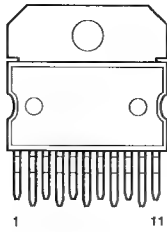
SDA9361



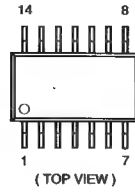
STV9379



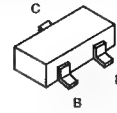
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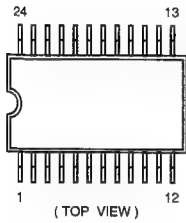
U2860B-BFPG3
74LVC08D



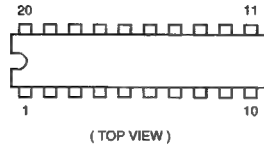
DTA114EK	DTC144EK
DTA114EK-T146	DTC144EK-T146
DTA144EK	DTC144EKA-T146
DTA144EK-T146	2SA1037K-T-146-R
DTC114EK	2SA1162-G
DTC114EKA-T146	2SC2412K-QR
DTC124EKA-T146	2SC2412K-T-146-R



TC9293F-EL



TDA7309

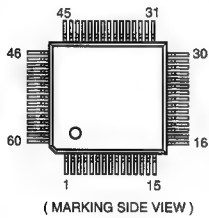


BC546B
BC556B

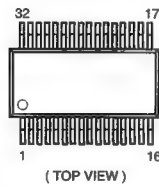


JA101TP-Q	2SA733-K
JC501TP-Q	2SA933AS-RT
DTA144ESA	2SA933AS-QRT
DTA144ESA-TP	2SA933S-RT
DTC144ESA-TP	2SC1740S-RT
2SA1175-HFE	2SC2785-HFE

TC9337F-015



TDA8755T-T



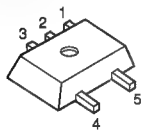
BF199-AMMO



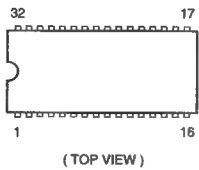
2SA1837



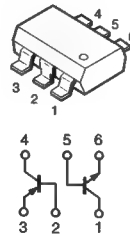
TC4S66F
TC4S66F-TE85L



TDA9143/N2
TDA9144/N2
TDA9170T



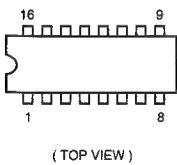
IMZ1A-T109



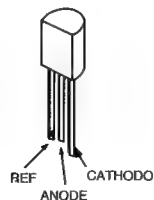
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2SC2551-O
2SC2552O-TPE2



TDA4665T-T



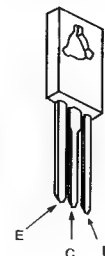
TL431CLP
TL431CLP-Z20
TL431CPS-T1
TL431CZ



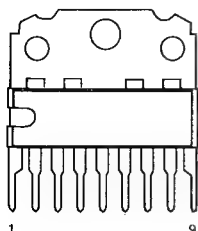
IRF620



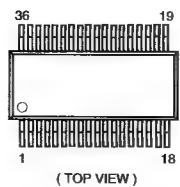
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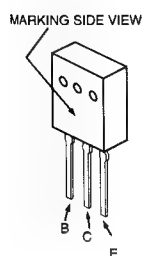
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TDA6111Q/N4



TMS4C2972-26DTR
TMS4C2972-28DTR



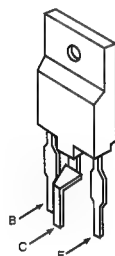
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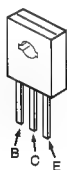
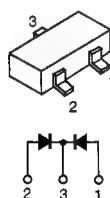
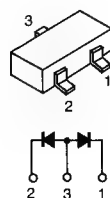
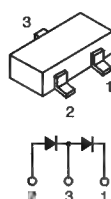
2SC4793



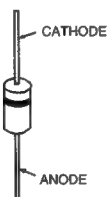
2SC4834NP-F09



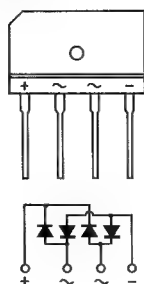
2SD2396H

DAN202K
DAN202K-T-146DAP202K
DAP202K-T-146DA204K
DA204K-T-146

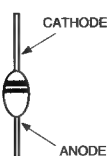
D1NL20 R2K-V1
D1NL20-TA RGP02-20EG23
D1NL20-TR RGP02-20EL-6394
EGP20G RGP10GPKG23
EL1Z RGP15GPKG23
GP08D S2LA20F
GP08DPKG23 1SS133T-77
MTZJ-T-77-9.1 1SS83
MTZJ-T-77-9.1A 1SS83TD



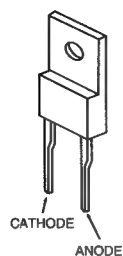
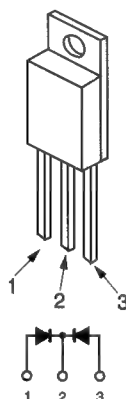
D10SC4M

D4SB60L
D4SB60L-F
RBA-402L

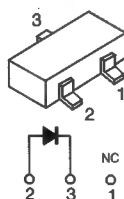
ERC38-06



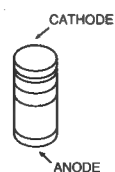
ERD08M-15

ESAD39M-06C
ESAD39M-06CF38

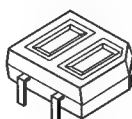
MA3033-L MA3062M-TX
MA3033L-TX MA3030-H(TX)
MA3056M-TX RD5.6M-B2



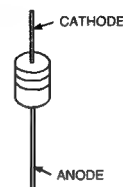
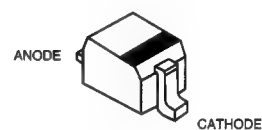
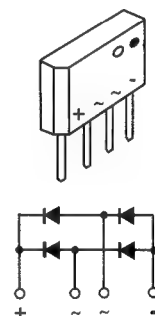
MA3051L-TX



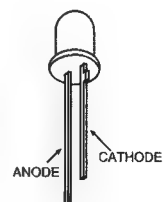
MA73-TX



MTZJ-T-77-13B MTZJ-33C
MTZJ-T-77-15B MTZJ-39C
MTZJ-T-77-2.2A RD15ES-B2
MTZJ-T-77-33C RD5.6ESB2
MTZJ-T-77-39C RD9.1ESB2
MTZJ-T-77-5.6B 1SS119-25
MTZJ-T-77-9.1B 1SS119-25TD
MTZJ-13B

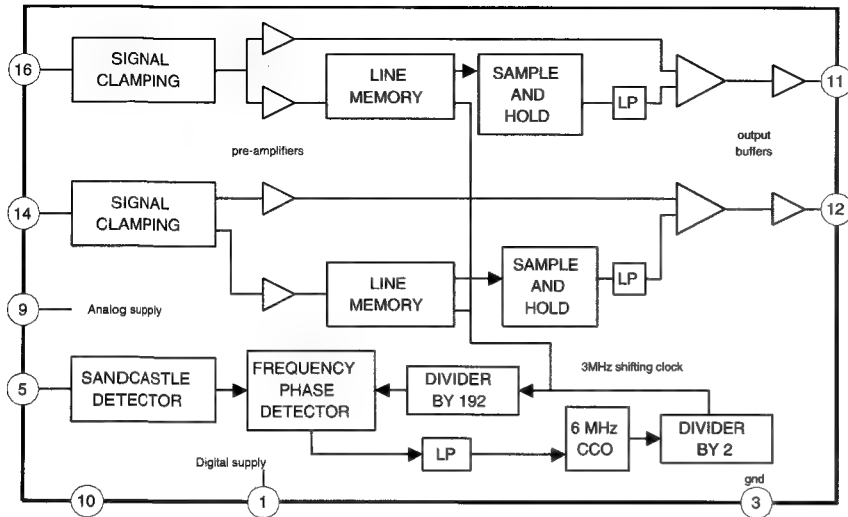
RD12SB2
UDZ-TE-17-12BS1VB20-S
S1VB40

SLA-570KT3F

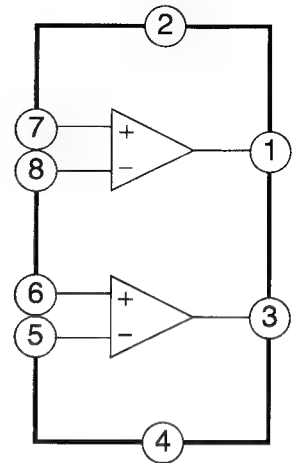


5-5. IC BLOCK DIAGRAMS

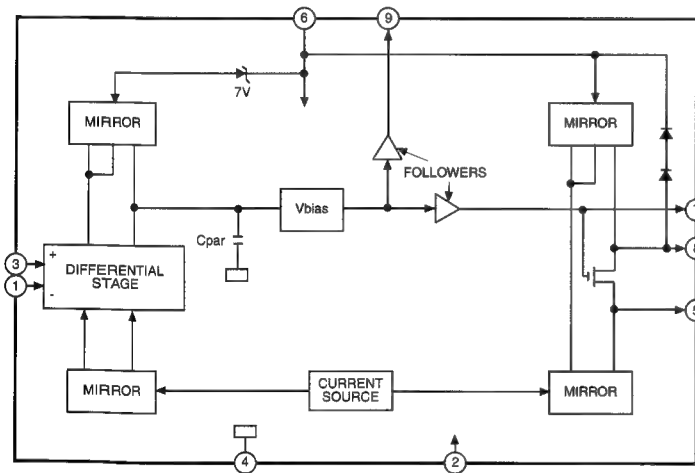
A Board IC303, TDA4665T-T



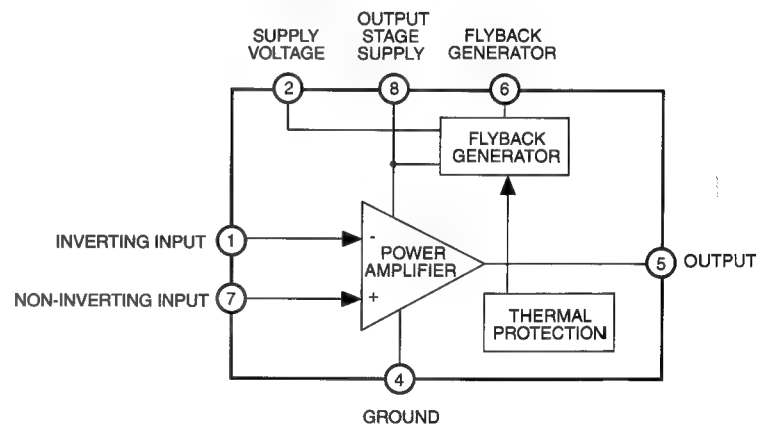
D Board IC261 TDA2822*



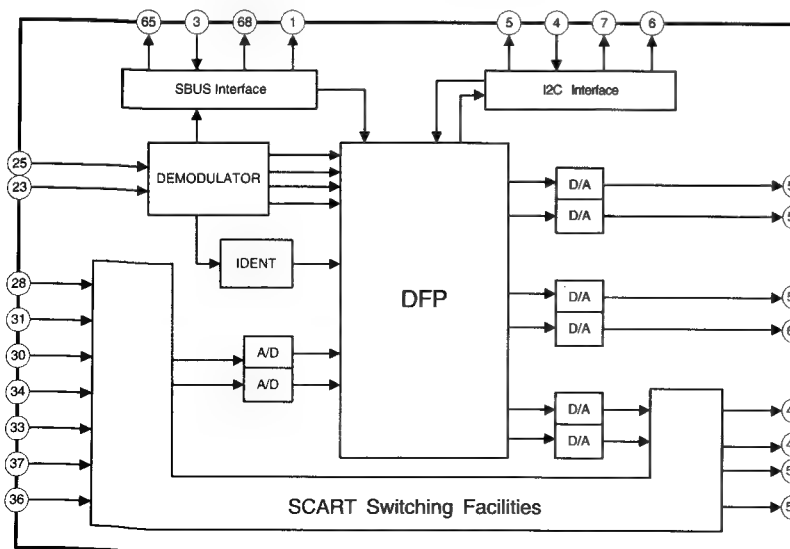
C Board IC703,704,705 TDA6111Q/N4



D Board IC802 STV9379



A Board IC201 MSP3400C-PS-C6-T/MSP3410B-PS-F7-T




SECTION 6


EXPLODED VIEWS

NOTE :

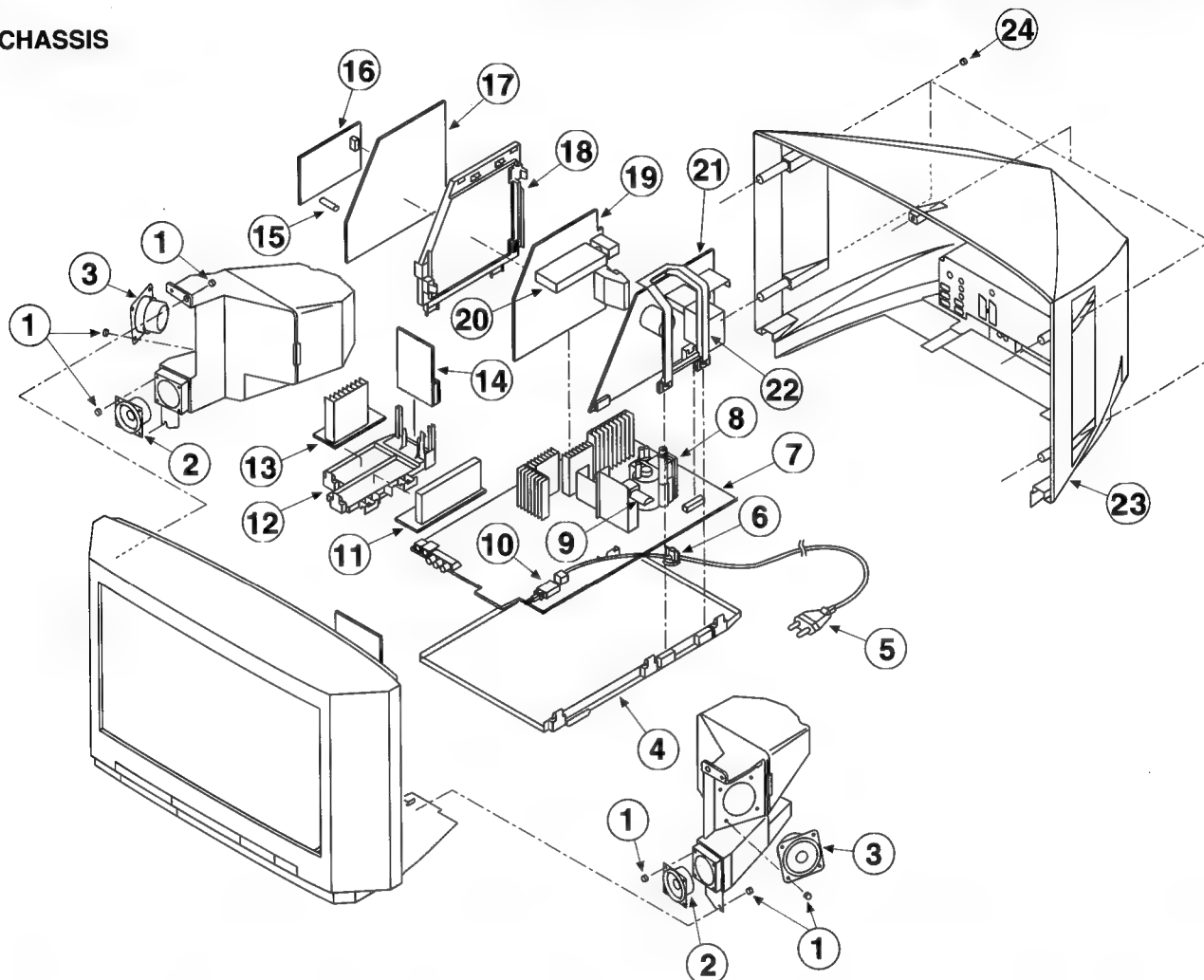
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and marked  are critical for safety.

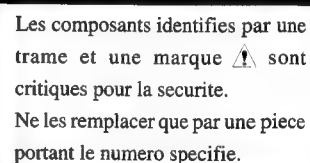
Replace only with the part number specified.

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. CHASSIS

REF NO	PART NO	DESCRIPTION	REMARK	REF NO	PART NO	DESCRIPTION	REMARK
1	4-039-355-11	SCREW(4X12), (+) BV TAPPING		15	*A-203-568-01	HOLDER, PCB (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
2	1-505-154-11	SPEAKER (6.5CM)		16	*A-1626-007-A	Q BOARD, COMPLETE (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
3	1-505-155-11	SPEAKER (10CM)		17	*A-1620-077-A	B BOARD, COMPLETE (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
4	*A-203-457-01	BRACKET, MAIN			*A-1620-084-A	B BOARD, COMPLETE (KV-28WS4B)	
5	*A-1-751-680-11	CORD, POWER (WITH NOISE FILTER) 2.5A/250V		18	*A-203-612-01	BRACKET, A-B	
6	*A-203-511-01	AC CORD LOCK (9C)		19	*A-1632-563-A	A BOARD, COMPLETE (KV-28WS4A)	
7	*A-1640-244-A	D BOARD, COMPLETE			*A-1632-562-A	A BOARD, COMPLETE (KV-28WS4B)	
8	*A-1-453-222-11	TRANSFORMER ASSY, FLYBACK (MX-4003/U2B4)			*A-1632-493-A	A BOARD, COMPLETE (KV-28WS4D)	
9	*A-203-609-01	HOLDER, G			*A-1632-564-A	A BOARD, COMPLETE (KV-28WS4E)	
10	*A-1-571-433-21	SWITCH, PUSH (AC POWER)			*A-1632-565-A	A BOARD, COMPLETE (KV-28WS4K)	
11	*A-1652-042-A	T BOARD, COMPLETE (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)			*A-1632-566-A	A BOARD, COMPLETE (KV-28WS4R)	
	*A-1652-044-A	T BOARD, COMPLETE (KV-28WS4B)		20	1-693-338-21	TUNER/VIF (AEP) (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
12	*A-203-537-01	BRACKET, J-K-T			1-693-340-21	TUNER/VIF (FR) (KV-28WS4B)	
13	*A-1649-015-A	K BOARD, COMPLETE		21	*A-1636-018-A	G BOARD, COMPLETE	
14	*A-1651-083-A	J1 BOARD, COMPLETE (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)		22	*A-203-613-01	SUPPORTER, G	
	*A-1651-089-A	J1 BOARD, COMPLETE (KV-28WS4B)		23	4-203-543-11	COVER, REAR	
				24	4-039-358-01	SCREW (4X16), (+) BV TAPPING	



REF NO	PART NO	DESCRIPTION	REMARK
67	*A-453-005-32	PERM ASSY, ROTABLE TUBE (MAGNET)	
68	*A-1644-075-A	VM BOARD, COMPLETE	
69	*A-1638-092-A	C BOARD, COMPLETE	
70	4-369-318-31	SPRING, TENSION	
71	*4-203-390-01	CUSHION, DGC	
72	1-411-993-11	COIL, DEGAUSSING	
73	4-202-463-01	CLIP, DGC (25")	
74	*4-050-252-01	SPACER, DGC	
75	4-308-870-00	CLIP, LEAD WIRE	
76	1-452-032-00	MAGNET, DISK; 10MM Ø	
77	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM Ø	
78	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
79	3-701-007-00	BAND, BINDING	

SECTION 7

ELECTRICAL PARTS LIST

The components identified by shading and marked **A** are critical for safety.
Replace only with the part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

When indicating parts by reference number, please include the board name.

CAPACITORS

MF : mF, PF : mmF

COILS

MMH : mH, μ H : μ H**B**

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1620-077-A	B BOARD, COMPLETE (KV-28WS4A/28WS4D/ ***** 28WS4E/28WS4K/ 28WS4R)		C455	1-126-964-11	ELECT 10MF 20% 50V	
	*A-1620-084-A	B BOARD, COMPLETE (KV-28WS4B) *****		C458	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
		< CAPACITOR >		C460	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C407	1-126-969-11	ELECT 220MF 20% 50V		C1800	1-126-963-11	ELECT 4.7MF 20% 50V	
C408	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1801	1-126-963-11	ELECT 4.7MF 20% 50V	
C409	1-162-638-11	CERAMIC CHIP 1MF 16V		C1802	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	
C410	1-162-638-11	CERAMIC CHIP 1MF 16V		C1803	1-126-964-11	ELECT 10MF 20% 50V	
C411	1-162-638-11	CERAMIC CHIP 1MF 16V		C1804	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C412	1-163-037-11	CERAMIC CHIP 0.022MF 10% 50V		C1805	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C413	1-163-037-11	CERAMIC CHIP 0.022MF 10% 50V		C1806	1-110-501-11	CERAMIC CHIP 0.33MF 10% 16V	
C414	1-164-005-11	CERAMIC CHIP 0.47MF 25V		C1807	1-126-963-11	ELECT 4.7MF 20% 50V	
C415	1-162-638-11	CERAMIC CHIP 1MF 16V		C1808	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C416	1-162-638-11	CERAMIC CHIP 1MF 16V		C1809	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C417	1-162-638-11	CERAMIC CHIP 1MF 16V		C1810	1-162-638-11	CERAMIC CHIP 1MF 16V	
C418	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1811	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C419	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1812	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C420	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1813	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C421	1-162-568-11	CERAMIC CHIP 0.33MF 10% 16V		C1814	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C422	1-162-638-11	CERAMIC CHIP 1MF 16V		C1815	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C427	1-126-963-11	ELECT 4.7MF 20% 50V		C1816	1-126-963-11	ELECT 4.7MF 20% 50V	
C428	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1817	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C429	1-163-103-00	CERAMIC CHIP 27PF 5% 50V		C1818	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C430	1-163-103-00	CERAMIC CHIP 27PF 5% 50V		C1819	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C431	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1823	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C432	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1824	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C433	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1825	1-126-964-11	ELECT 10MF 20% 50V	
C434	1-163-117-00	CERAMIC CHIP 100PF 5% 50V		C1826	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C435	1-163-145-00	CERAMIC CHIP 0.0015MF 5% 50V		C1827	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C438	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1828	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C439	1-126-964-11	ELECT 10MF 20% 50V		C1829	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C440	1-126-964-11	ELECT 10MF 20% 50V		C1830	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C441	1-163-037-11	CERAMIC CHIP 0.022MF 10% 50V		C1831	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C443	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1832	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C444	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1833	1-126-964-11	ELECT 10MF 20% 50V	
C445	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1834	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
C446	1-163-125-00	CERAMIC CHIP 220PF 5% 50V		C1835	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
C449	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1836	1-110-501-11	CERAMIC CHIP 0.33MF 10% 16V	
C450	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1839	1-126-963-11	ELECT 4.7MF 20% 50V	
C451	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1840	1-162-638-11	CERAMIC CHIP 1MF 16V	
C452	1-163-103-00	CERAMIC CHIP 27PF 5% 50V		C1841	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C453	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V		C1842	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C454	1-162-568-11	CERAMIC CHIP 0.33MF 10% 16V		C1843	1-164-489-11	CERAMIC CHIP 0.22MF 10% 16V	
				C1846	1-126-963-11	ELECT 4.7MF 20% 50V	
				C1847	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	
				C1848	1-164-004-11	CERAMIC CHIP 0.1MF 10% 25V	

B

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C1849	1-163-097-00	CERAMIC CHIP 15PF	5% 50V	C1933	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C1850	1-163-107-00	CERAMIC CHIP 39PF	5% 50V	C1935	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C1851	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V	JR426	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C1852	1-164-005-11	CERAMIC CHIP 0.47MF	16V	R1824	1-164-049-11	CERAMIC 13PF	5% 50V
C1853	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	R1839	1-126-963-11	ELECT 4.7MF	20% 50V
C1854	1-164-005-11	CERAMIC CHIP 0.47MF	16V	< CONNECTOR >			
C1855	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V	CN412	*1-564-513-11	PLUG, CONNECTOR 10P	
C1856	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	CN413	*1-564-511-11	PLUG, CONNECTOR 8P	
C1857	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	CN417	*1-564-596-11	PLUG, CONNECTOR 15P	
C1858	1-163-989-11	CERAMIC CHIP 0.033MF	10% 25V	CN419	*1-564-512-11	PLUG, CONNECTOR 9P	
C1859	1-164-005-11	CERAMIC CHIP 0.47MF	16V	CN1810	*1-564-512-11	PLUG, CONNECTOR 9P	
C1860	1-126-961-11	ELECT 2.2MF	20% 50V	CN1813	1-778-822-11	CONNECTOR, BOARD TO BOARD 40P	
C1861	1-163-097-00	CERAMIC CHIP 15PF	5% 50V	CN1815	*1-564-512-11	PLUG, CONNECTOR 9P	
C1862	1-163-097-00	CERAMIC CHIP 15PF	5% 50V	< DIODE >			
C1864	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	D401	8-719-914-43	DIODE DAN202K	
C1865	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	D402	8-719-914-43	DIODE DAN202K	
C1866	1-126-964-11	ELECT 10MF	20% 50V	D403	8-719-028-00	DIODE MA3033L	
C1867	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D410	8-719-401-63	DIODE MA3062M-TX	
C1868	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D411	8-719-914-43	DIODE DAN202K	
C1869	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D412	8-719-914-43	DIODE DAN202K	
C1870	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D414	8-719-914-42	DIODE DA204K	
C1871	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D415	8-719-914-43	DIODE DAN202K	
C1872	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	< FERRITE BEAD >			
C1873	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB401	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1874	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB402	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1875	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB403	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1876	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	FB404	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1877	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	FB405	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1878	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB406	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1879	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB407	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1880	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1801	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1881	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1802	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1882	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1803	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1883	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1804	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1884	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1805	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1885	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1806	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1886	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1807	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1887	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1808	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1889	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FB1809	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1890	1-126-964-11	ELECT 10MF	20% 50V	FB1810	1-414-234-11	INDUCTOR, FERRITE BEAD	
C1891	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	< ENCAPSULATED FILTER >			
C1892	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FL1801	1-233-767-11	FILTER	
C1893	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FL1803	1-415-940-11	DELAY LINE	
C1894	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FL1807	1-236-071-11	ENCAPSULATED COMPONENT	
C1897	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	FL1808	1-236-071-11	ENCAPSULATED COMPONENT	
C1898	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	< IC >			
C1899	1-163-097-00	CERAMIC CHIP 15PF	5% 50V	IC402	8-759-275-36	IC TDA4780/V3	
C1903	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	IC403	8-759-421-42	IC SDA9361	
C1904	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V	IC405	8-759-438-33	IC 74LVC08D	
C1910	1-126-964-11	ELECT 10MF	20% 50V	IC406	8-759-439-64	IC HEF4053BT	
C1912	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	IC1801	8-759-257-59	IC TDA8755T-T	
C1921	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	IC1803	8-759-439-27	IC TMS4C2972-26DTR	
C1922	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	IC1804	8-759-439-64	IC HEF4053BT	
C1924	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	IC1805	8-759-439-64	IC HEF4053BT	
C1925	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V				
C1926	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V				
C1927	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V				
C1928	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V				
C1931	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V				
C1932	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V				

B

REF.NO.	PART NO.	DESCRIPTION	REMARK
IC1806	8-759-439-64	IC HEP4053BT	
IC1807	8-759-439-64	IC HEP4053BT	
IC1808	8-759-439-62	IC SAA4990H/V2	
IC1809	8-759-438-63	IC SDA9280A41	
IC1810	8-759-438-66	IC CXD8626Q	
IC1811	8-759-257-59	IC TDA8755T-T	
IC1812	8-759-426-57	IC 74HCT4046AD	
IC1813	8-759-426-57	IC 74HCT4046AD	
IC1814	8-759-438-64	IC SAA4952WP/V1	
IC1815	8-759-426-57	IC 74HCT4046AD	
IC1816	8-759-444-25	IC P83C654EBA/560	
IC1817	8-759-439-27	IC TMS4C2972-28DTR	
IC1819	8-759-991-41	IC LM78L05ACZ	
IC1821	8-759-439-64	IC HEP4053BT	
IC1822	8-759-439-64	IC HEP4053BT	
IC1823	8-759-991-41	IC LM78L05ACZ	
IC1824	8-759-991-41	IC LM78L05ACZ	
IC1825	8-759-234-77	IC TC4S66F-TE85L	
IC1831	8-759-907-81	IC SN74LS221NS	
< COIL >			
L401	1-408-429-00	INDUCTOR 470UH	
L402	1-408-429-00	INDUCTOR 470UH	
L407	1-410-999-11	INDUCTOR CHIP 3.3UH	
L1801	1-410-435-21	INDUCTOR 220UH	
L1802	1-410-435-21	INDUCTOR 220UH	
L1803	1-408-403-00	INDUCTOR 3.3UH	
L1804	1-408-409-00	INDUCTOR 10UH	
L1805	1-410-999-11	INDUCTOR CHIP 3.3UH	
L1810	1-410-427-11	INDUCTOR 4.7UH	
L1811	1-408-403-00	INDUCTOR 3.3UH	
L1812	1-408-403-00	INDUCTOR 3.3UH	
L1813	1-408-403-00	INDUCTOR 3.3UH	
< TRANSISTOR >			
Q411	8-729-901-06	TRANSISTOR DTA144EK	
Q412	8-729-901-06	TRANSISTOR DTA144EK	
Q415	8-729-900-53	TRANSISTOR DTC114EKA-T146	
Q416	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1801	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1802	8-729-901-01	TRANSISTOR DTC144EK	
Q1804	8-729-901-01	TRANSISTOR DTC144EK	
Q1805	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1807	8-729-216-22	TRANSISTOR 2SA1162-G	
Q1808	8-729-901-01	TRANSISTOR DTC144EK	
Q1809	8-729-901-01	TRANSISTOR DTC144EK	
Q1810	8-729-901-01	TRANSISTOR DTC144EK	
Q1812	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q1813	8-729-900-53	TRANSISTOR DTC114EKA	
< RESISTOR >			
C1916	1-216-043-91	METAL GLAZE 560 5% 1/10W	
L1806	1-216-295-91	METAL GLAZE 0 5% 1/10W	
L1807	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR409	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR417	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR418	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR420	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR421	1-216-295-91	METAL GLAZE 0 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION	REMARK
JR422	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR423	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR424	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1801	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1802	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1803	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1804	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1805	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1806	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1807	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1808	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1809	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1810	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1811	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1812	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1840	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1841	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1843	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4B)
JR1859	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1860	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1861	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1862	1-216-043-91	METAL GLAZE 560 5% 1/10W	
JR1863	1-216-043-91	METAL GLAZE 560 5% 1/10W	
JR1864	1-216-043-91	METAL GLAZE 560 5% 1/10W	
JR1875	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1890	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1893	1-216-295-91	METAL GLAZE 0 5% 1/10W	(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
JR1894	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1896	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1897	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1898	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1899	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1901	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1904	1-216-029-00	METAL GLAZE 150 5% 1/10W	
JR1905	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1910	1-216-295-91	METAL GLAZE 0 5% 1/10W	
JR1911	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R408	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R409	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R439	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R443	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R444	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R445	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R446	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R447	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R448	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R449	1-216-049-91	METAL GLAZE 1K 5% 1/10W	

B

REF.NO.	PART NO.	DESCRIPTION	REMARK
R450	1-216-099-00	METAL GLAZE 120K 5%	1/10W
R451	1-216-101-00	METAL GLAZE 150K 5%	1/10W
R452	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R453	1-216-017-91	METAL GLAZE 47 5%	1/10W
R454	1-216-017-91	METAL GLAZE 47 5%	1/10W
R455	1-216-063-91	METAL GLAZE 3.9K 5%	1/10W
R456	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R457	1-216-099-00	METAL GLAZE 120K 5%	1/10W
R458	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R459	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R463	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R465	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R466	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R467	1-216-041-00	METAL GLAZE 470 5%	1/10W
R468	1-216-025-91	METAL GLAZE 100 5%	1/10W
R469	1-216-025-91	METAL GLAZE 100 5%	1/10W
R470	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R473	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R477	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R483	1-216-063-91	METAL GLAZE 3.9K 5%	1/10W
R484	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R492	1-216-027-00	METAL GLAZE 120 5%	1/10W
R1801	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R1802	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1803	1-216-296-91	METAL GLAZE 0 5%	1/8W
R1804	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R1805	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1806	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R1807	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1808	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1810	1-216-076-00	METAL GLAZE 13K 5%	1/10W
R1811	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1812	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1813	1-216-045-00	METAL GLAZE 680 5%	1/10W
R1814	1-216-031-00	METAL GLAZE 180 5%	1/10W
R1815	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1816	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1817	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1818	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1819	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1820	1-216-029-00	METAL GLAZE 150 5%	1/10W
R1821	1-216-023-00	METAL GLAZE 82 5%	1/10W
R1822	1-216-296-91	METAL GLAZE 0 5%	1/8W
R1823	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R1826	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R1827	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1828	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R1829	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1830	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1831	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R1832	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1833	1-216-041-00	METAL GLAZE 470 5%	1/10W
R1834	1-216-115-00	METAL GLAZE 560K 5%	1/10W
R1835	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1836	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1837	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1838	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R1840	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R1841	1-216-041-00	METAL GLAZE 470 5%	1/10W
R1842	1-216-115-00	METAL GLAZE 560K 5%	1/10W

REF.NO.	PART NO.	DESCRIPTION	REMARK
R1843	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1844	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R1845	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1846	1-216-056-00	METAL GLAZE 2K 5%	1/10W
R1847	1-216-115-00	METAL GLAZE 560K 5%	1/10W
R1848	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1849	1-216-001-00	METAL GLAZE 10 5%	1/10W
R1850	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1851	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1852	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1853	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1854	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1855	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1856	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1857	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1858	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1859	1-216-017-91	METAL GLAZE 47 5%	1/10W
R1860	1-216-001-00	METAL GLAZE 10 5%	1/10W
R1861	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1864	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R1865	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1866	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1867	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R1868	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1869	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1870	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1871	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R1872	1-216-031-00	METAL GLAZE 180 5%	1/10W
R1873	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1874	1-216-031-00	METAL GLAZE 180 5%	1/10W
R1875	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1876	1-216-031-00	METAL GLAZE 180 5%	1/10W
R1877	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1878	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1879	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1880	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R1881	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1882	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R1885	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1886	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1888	1-216-021-00	METAL GLAZE 68 5%	1/10W
R1890	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1891	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1892	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1893	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1894	1-216-047-91	METAL GLAZE 820 5%	1/10W
R1895	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1896	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R1897	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1898	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1899	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R1900	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1901	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1902	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1903	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1904	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1905	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1906	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1907	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1908	1-216-097-91	METAL GLAZE 100K 5%	1/10W



REF.NO.	PART NO.	DESCRIPTION	REMARK
R1909	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1910	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1911	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1912	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1914	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R1915	1-216-063-91	METAL GLAZE 3.9K 5%	1/10W
R1920	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1921	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1922	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1923	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R1924	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R1930	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1931	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1932	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1933	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W

< CRYSTAL >

X401	1-767-343-21	VIBRATOR, CRYSTAL (24.576MHz)
X1801	1-579-175-11	VIBRATOR, CERAMIC (10MHz)

*A-1626-007-A Q BOARD, COMPLETE (KV-28WS4A/28WS4D/
***** 28WS4E/28WS4K/
28WS4R)

< CAPACITOR >

C1	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C2	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C4	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C6	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C7	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C8	1-104-664-11	ELECT 47MF	20%	16V
C9	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C10	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C11	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C12	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C13	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C14	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C15	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C16	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C20	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C21	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C22	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C23	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C24	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C25	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C26	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C27	1-126-965-11	ELECT 22MF	20%	50V
C28	1-126-941-11	ELECT 470MF	20%	16V
C29	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C33	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C34	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C36	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C37	1-124-120-11	ELECT 220MF	20%	16V
C38	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C39	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C40	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C41	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C42	1-165-319-11	CERAMIC CHIP 0.1MF		50V
C43	1-165-319-11	CERAMIC CHIP 0.1MF		50V
C44	1-165-319-11	CERAMIC CHIP 0.1MF		50V

REF.NO.	PART NO.	DESCRIPTION	REMARK
C45	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C46	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C47	1-165-319-11	CERAMIC CHIP 0.1MF	50V

< CONNECTOR >

CN1	1-778-823-11	CONNECTOR, BOARD TO BOARD 40P
CN3	*1-564-520-11	PLUG, CONNECTOR 5P

< IC >

IC1	8-759-432-35	IC MC74F240DWR2
IC2	8-759-432-94	IC CXD8625Q
IC3	8-759-432-95	IC CXD8624Q
IC4	8-759-439-27	IC TMS4C2972-28DTR
IC5	8-759-432-96	IC MC74F157ADR2
IC6	8-759-439-27	IC TMS4C2972-28DTR
IC7	8-759-376-88	IC SAA7185WP
IC8	8-759-908-15	IC TL431CLP
IC9	8-759-432-96	IC MC74F157ADR2
IC10	8-759-432-96	IC MC74F157ADR2

IC11	8-759-432-96	IC MC74F157ADR2
IC12	8-759-432-96	IC MC74F157ADR2

< COIL >

L1	1-408-409-00	INDUCTOR	10UH
L3	1-408-409-00	INDUCTOR	10UH

< TRANSISTOR >

Q1	8-729-032-65	TRANSISTOR 2SD2396H
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< RESISTOR >

C18	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1	1-216-025-91	METAL GLAZE 100 5%	1/10W
R2	1-216-025-91	METAL GLAZE 100 5%	1/10W
R5	1-216-295-91	METAL GLAZE 0 5%	1/10W
R6	1-216-295-91	METAL GLAZE 0 5%	1/10W
R7	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R8	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R9	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R10	1-216-295-91	METAL GLAZE 0 5%	1/10W
R11	1-216-295-91	METAL GLAZE 0 5%	1/10W
R12	1-216-295-91	METAL GLAZE 0 5%	1/10W
R14	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R15	1-216-295-91	METAL GLAZE 0 5%	1/10W
R17	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R18	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R19	1-216-295-91	METAL GLAZE 0 5%	1/10W
R20	1-216-295-91	METAL GLAZE 0 5%	1/10W
R21	1-216-003-11	METAL GLAZE 12 5%	1/10W
R22	1-216-008-11	METAL GLAZE 20 5%	1/10W
R23	1-216-008-11	METAL GLAZE 20 5%	1/10W
R24	1-216-295-91	METAL GLAZE 0 5%	1/10W
R25	1-216-295-91	METAL GLAZE 0 5%	1/10W
R29	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R32	1-216-295-91	METAL GLAZE 0 5%	1/10W
R33	1-216-295-91	METAL GLAZE 0 5%	1/10W
R34	1-216-295-91	METAL GLAZE 0 5%	1/10W
R35	1-216-295-91	METAL GLAZE 0 5%	1/10W
R36	1-216-295-91	METAL GLAZE 0 5%	1/10W
R37	1-216-295-91	METAL GLAZE 0 5%	1/10W

REF.NO.	PART NO.	DESCRIPTION	REMARK
C118	1-104-664-11	ELECT 47MF	20% 16V
C119	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C120	1-124-907-11	ELECT 10MF	20% 50V
C121	1-164-299-11	CERAMIC CHIP 0.22MF	10% 25V
C122	1-164-346-11	CERAMIC CHIP 1MF	16V
C126	1-104-664-11	ELECT 47MF	20% 16V
C127	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C128	1-104-664-11	ELECT 47MF	20% 16V
C129	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C130	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C131	1-164-346-11	CERAMIC CHIP 1MF	16V
C132	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C133	1-164-346-11	CERAMIC CHIP 1MF	16V
C134	1-124-907-11	ELECT 10MF	20% 50V
C135	1-164-299-11	CERAMIC CHIP 0.22MF	10% 25V
C136	1-124-907-11	ELECT 10MF	20% 50V
C137	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C138	1-126-964-11	ELECT 10MF	20% 50V
C139	1-164-346-11	CERAMIC CHIP 1MF	16V
C140	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C141	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C143	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (KV-28WS4B)
C144	1-163-237-11	CERAMIC CHIP 27PF	5% 50V (KV-28WS4B)
C145	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (KV-28WS4B)
C146	1-164-346-11	CERAMIC CHIP 1MF	16V
C150	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C151	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C152	1-124-907-11	ELECT 10MF	20% 50V
C153	1-110-501-11	CERAMIC CHIP 0.33MF	10% 16V
C154	1-110-501-11	CERAMIC CHIP 0.33MF	10% 16V
C155	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C156	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C157	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C159	1-164-505-11	CERAMIC CHIP 2.2MF	16V

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*A-1632-563-A  A BOARD, COMPLETE (KV-28WS4A)
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*A-1632-562-A  A BOARD, COMPLETE (KV-28WS4B)
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*A-1632-493-A  A BOARD, COMPLETE (KV-28WS4D)
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*A-1632-564-A  A BOARD, COMPLETE (KV-28WS4E)
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*A-1632-565-A  A BOARD, COMPLETE (KV-28WS4K)
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*A-1632-566-A  A BOARD, COMPLETE (KV-28WS4R)
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C101	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C103	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
					(KV-28WS4B)
C105	1-126-965-11	ELECT	22MF	20%	50V
C111	1-124-907-11	ELECT	10MF	20%	50V
C112	1-164-346-11	CERAMIC CHIP	1MF		16V
C114	1-164-346-11	CERAMIC CHIP	1MF		16V
C116	1-104-664-11	ELECT	47MF	20%	16V
C117	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V

C160	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C162	1-164-346-11	CERAMIC CHIP	1MF		16V
C163	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C164	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C165	1-164-346-11	CERAMIC CHIP	1MF		16V
C166	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C167	1-164-222-11	CERAMIC CHIP	0.22MF		25V
C200	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C201	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C202	1-164-506-11	CERAMIC CHIP	4.7MF		16V
C203	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C204	1-162-568-11	CERAMIC CHIP	0.33MF	10%	16V
C205	1-164-506-11	CERAMIC CHIP	4.7MF		16V
C206	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C207	1-110-501-11	CERAMIC CHIP	0.33MF	10%	16V
C208	1-110-501-11	CERAMIC CHIP	0.33MF	10%	16V
C209	1-110-501-11	CERAMIC CHIP	0.33MF	10%	16V
C210	1-110-501-11	CERAMIC CHIP	0.33MF	10%	16V
C211	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C212	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C213	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C214	1-164-506-11	CERAMIC CHIP	4.7MF		16V
C215	1-164-506-11	CERAMIC CHIP	4.7MF		16V

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C216	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C357	1-163-241-11	CERAMIC CHIP 39PF	5% 50V
C217	1-124-907-11	ELECT 10MF	20% 50V	C1001	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C218	1-124-907-11	ELECT 10MF	20% 50V	C1002	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C219	1-163-131-00	CERAMIC CHIP 390PF	5% 50V	C1003	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C220	1-163-131-00	CERAMIC CHIP 390PF	5% 50V	C1004	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C221	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	C1005	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C222	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	C1006	1-165-321-11	CERAMIC CHIP 0.68MF	10% 16V
C223	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	C1007	1-164-344-11	CERAMIC CHIP 0.068MF	10% 25V
C224	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	C1020	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C227	1-164-337-11	CERAMIC CHIP 2.2MF	16V	C1021	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C228	1-164-337-11	CERAMIC CHIP 2.2MF	16V	C1022	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C229	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1035	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C230	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C1036	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C231	1-163-087-00	CERAMIC CHIP 4PF	0.25PF 50V	C1039	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C232	1-163-087-00	CERAMIC CHIP 4PF	0.25PF 50V	C1040	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C233	1-163-243-11	CERAMIC CHIP 47PF	5% 50V	C1041	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C234	1-163-243-11	CERAMIC CHIP 47PF	5% 50V	C1042	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C303	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1043	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C304	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1060	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C305	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1101	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C306	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1102	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C307	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1103	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C308	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1104	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C309	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1105	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C310	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1106	1-164-346-11	CERAMIC CHIP 1MF	16V
C311	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1108	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C312	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1109	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V
C313	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1110	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C314	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1111	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C315	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1112	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C316	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1113	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C317	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1115	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C318	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V	C1116	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C319	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V	C1201	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C320	1-165-320-11	CERAMIC CHIP 0.47MF	10% 16V	C1202	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C321	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C1203	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C322	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C1204	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C323	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C1205	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C324	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1206	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C325	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1207	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C332	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1208	1-163-263-11	CERAMIC CHIP 330PF	5% 50V
C333	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1209	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C334	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1210	1-165-320-11	CERAMIC CHIP 0.47MF	10% 16V
C335	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1213	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C336	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1214	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C337	1-162-568-11	CERAMIC CHIP 0.33MF	10% 16V	C1215	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C338	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1216	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C339	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1217	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C340	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1218	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C341	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1219	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C342	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1220	1-164-337-11	CERAMIC CHIP 2.2MF	16V
C343	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1221	1-162-638-11	CERAMIC CHIP 1MF	16V
C344	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C1222	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C345	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C1223	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C346	1-164-505-11	CERAMIC CHIP 2.2MF	16V	C1224	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C347	1-164-505-11	CERAMIC CHIP 2.2MF	16V	C1225	1-126-934-11	ELECT 220MF	20% 16V
C350	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C1227	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C351	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C1228	1-164-506-11	CERAMIC CHIP 4.7MF	16V
C355	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	C1229	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
C356	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	C1230	1-163-245-11	CERAMIC CHIP 56PF	5% 50V

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C1231	1-163-245-11	CERAMIC CHIP 56PF	5% 50V	C2021	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C1235	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C2023	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C1301	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C2024	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C1302	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C2025	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C1303	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C2026	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C1304	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C2028	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C1305	1-163-222-11	CERAMIC CHIP 5PF	0.25PF 50V	C2029	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C1306	1-163-243-11	CERAMIC CHIP 47PF	5% 50V	C2030	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C1310	1-124-443-00	ELECT 100MF	20% 10V	C2031	1-164-222-11	CERAMIC CHIP 0.22MF	25V
C1311	1-164-506-11	CERAMIC CHIP 4.7MF	16V	C2033	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C1312	1-164-506-11	CERAMIC CHIP 4.7MF	16V	< FILTER >			
C1313	1-164-506-11	CERAMIC CHIP 4.7MF	16V	CD1001	1-527-992-31	OSCILLATOR, CERAMIC (6MHz)	
C1314	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	CF200	1-409-327-00	TRAP, CERAMIC (6.5MHZ)	
C1315	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	< CONNECTOR >			
C1316	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN101	1-695-301-11	CONNECTOR, BOARD TO BOARD 40P	
C1318	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	CN115	*1-564-524-11	PLUG, CONNECTOR 9P	
C1320	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN117	*1-564-520-11	PLUG, CONNECTOR 5P	
C1321	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN201	1-766-296-11	CONNECTOR, DUAL SCART	
C1322	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN1411	1-564-523-11	PLUG, CONNECTOR 8P	
C1323	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN1413	1-564-523-11	PLUG, CONNECTOR 8P	
C1324	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CN2012	*1-564-525-11	PLUG, CONNECTOR 10P	
C1325	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	< BOOSTER >			
C1326	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	CP101	1-251-372-11	BOOSTER, RF	
C1327	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	< DIODE >			
C1328	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	D102	8-719-158-49	DIODE RD12SB2	
C1329	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	D103	8-719-158-49	DIODE RD12SB2	
C1330	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D104	8-719-158-49	DIODE RD12SB2	
C1331	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	D105	8-719-158-49	DIODE RD12SB2	
C1332	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D199	8-719-914-43	DIODE DAN202K	
C1333	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	D200	8-719-158-49	DIODE RD12SB2	
C1334	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D201	8-719-158-49	DIODE RD12SB2	
C1335	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	D202	8-719-158-49	DIODE RD12SB2	
C1350	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	D203	8-719-158-49	DIODE RD12SB2	
C1360	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	D204	8-719-158-49	DIODE RD12SB2	
C1361	1-104-663-11	ELECT 33MF	20% 16V	D205	8-719-158-49	DIODE RD12SB2	
C1401	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D206	8-719-158-49	DIODE RD12SB2	
C1402	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	D207	8-719-158-49	DIODE RD12SB2	
C1403	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	D208	8-719-158-49	DIODE RD12SB2	
C1404	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V	D209	8-719-158-49	DIODE RD12SB2	
C1405	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D210	8-719-158-49	DIODE RD12SB2	
C1406	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D211	8-719-158-49	DIODE RD12SB2	
C1407	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D212	8-719-158-49	DIODE RD12SB2	
C1408	1-164-182-11	CERAMIC CHIP 0.0033MF	10% 50V	D213	8-719-158-49	DIODE RD12SB2	
C1409	1-165-320-11	CERAMIC CHIP 0.47MF	10% 16V	D214	8-719-158-49	DIODE RD12SB2	
C1413	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D215	8-719-158-49	DIODE RD12SB2	
C1414	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D217	8-719-158-49	DIODE RD12SB2	
C1415	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D218	8-719-158-49	DIODE RD12SB2	
C1416	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D219	8-719-158-49	DIODE RD12SB2	
C1417	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D220	8-719-158-49	DIODE RD12SB2	
C1418	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D221	8-719-158-49	DIODE RD12SB2	
C1419	1-164-506-11	CERAMIC CHIP 4.7MF	16V	D223	8-719-158-49	DIODE RD12SB2	
C1420	1-164-506-11	CERAMIC CHIP 4.7MF	16V	D301	8-719-401-41	DIODE MA3051L-TX	
C1421	1-164-506-11	CERAMIC CHIP 4.7MF	16V	D1007	8-719-914-44	DIODE DAP202K	
C1422	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	D1008	8-719-914-43	DIODE DAN202K	
C2001	1-164-506-11	CERAMIC CHIP 4.7MF	16V				
C2002	1-164-506-11	CERAMIC CHIP 4.7MF	16V				
C2004	1-164-506-11	CERAMIC CHIP 4.7MF	16V				
C2005	1-164-506-11	CERAMIC CHIP 4.7MF	16V				
C2007	1-163-038-91	CERAMIC CHIP 0.1MF	25V				
C2020	1-164-222-11	CERAMIC CHIP 0.22MF	25V				



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
D1009	8-719-105-91	DIODE RD5.6M-B2		IC1402	8-759-288-85	IC TDA4665T-T	
D1010	8-719-105-91	DIODE RD5.6M-B2				(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
D1401	8-719-401-41	DIODE MA3051L-TX		IC2001	8-759-438-62	IC SDA5275	
D2001	8-719-036-58	DIODE MA3030-H(TX)				(KV-28WS4A/28WS4B/28WS4D/28WS4K/28WS4R)	
< FERRITE BEAD >				8-759-337-48	IC SDA5273P-C26-GEG	(KV-28WS4E)	
FB101	1-414-235-11	INDUCTOR, FERRITE BEAD		IC2004	8-759-426-56	IC MB814400C-70PJN-ER	
FB102	1-414-235-11	INDUCTOR, FERRITE BEAD		< COIL >			
< ENCAPSULATED FILTER >				L101	1-412-751-11	INDUCTOR 18UH (KV-28WS4B)	
FL102	1-236-071-11	ENCAPSULATED COMPONENT		L321	1-412-006-31	INDUCTOR CHIP 10UH	
FL103	1-236-071-11	ENCAPSULATED COMPONENT		< TRANSISTOR >			
FL200	1-236-071-11	ENCAPSULATED COMPONENT		Q102	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL201	1-233-764-21	FILTER (SMD)		Q103	8-729-039-67	TRANSISTOR BSS83 (KV-28WS4B)	
FL202	1-236-071-11	ENCAPSULATED COMPONENT		Q104	8-729-920-74	TRANSISTOR 2SC2412K-QR (KV-28WS4B)	
FL203	1-236-071-11	ENCAPSULATED COMPONENT		Q105	8-729-901-01	TRANSISTOR DTC144EK	
FL302	1-236-071-11	ENCAPSULATED COMPONENT		Q106	8-729-216-22	TRANSISTOR 2SA1162-G (KV-28WS4B)	
FL1001	1-236-071-11	ENCAPSULATED COMPONENT		Q107	8-729-216-22	TRANSISTOR 2SA1162-G	
FL1002	1-236-071-11	ENCAPSULATED COMPONENT		Q108	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1101	1-236-071-11	ENCAPSULATED COMPONENT		Q110	8-729-038-96	TRANSISTOR IMZ1A-T109	
FL1102	1-236-071-11	ENCAPSULATED COMPONENT		Q112	8-729-216-22	TRANSISTOR 2SA1162-G	
FL1201	1-236-071-11	ENCAPSULATED COMPONENT		Q120	8-729-027-52	TRANSISTOR DTC124EKA-T146	
FL1202	1-236-071-11	ENCAPSULATED COMPONENT		Q200	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1203	1-236-071-11	ENCAPSULATED COMPONENT		Q205	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1204	1-236-071-11	ENCAPSULATED COMPONENT		Q301	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1301	1-236-071-11	ENCAPSULATED COMPONENT		Q302	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1302	1-236-071-11	ENCAPSULATED COMPONENT		Q315	8-729-038-96	TRANSISTOR IMZ1A-T109	
FL1303	1-236-071-11	ENCAPSULATED COMPONENT		Q316	8-729-038-96	TRANSISTOR IMZ1A-T109	
FL1304	1-233-766-21	FILTER (SMD)		Q317	8-729-038-96	TRANSISTOR IMZ1A-T109	
FL1305	1-233-768-21	FILTER (SMD)		Q318	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1310	1-233-765-21	FILTER		Q1001	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL1402	1-236-071-11	ENCAPSULATED COMPONENT		Q1004	8-729-900-53	TRANSISTOR DTC114EK	
FL2001	1-236-071-11	ENCAPSULATED COMPONENT		Q1101	8-729-920-74	TRANSISTOR 2SC2412K-QR	
FL2003	1-236-071-11	ENCAPSULATED COMPONENT		Q1201	8-729-038-96	TRANSISTOR IMZ1A-T109	
< IC >				Q1202	8-729-038-96	TRANSISTOR IMZ1A-T109	
IC101	8-752-069-53	IC CXA1855Q-T6		Q1301	8-729-216-22	TRANSISTOR 2SA1162-G	
IC102	8-759-267-25	IC LM2940CT-9.0		Q1302	8-729-216-22	TRANSISTOR 2SA1162-G	
IC104	8-759-514-57	IC BA7046F		Q1303	8-729-216-22	TRANSISTOR 2SA1162-G	
IC201	8-759-376-56	IC MSP3400C-PS-C6-T-ND		Q1304	8-729-216-22	TRANSISTOR 2SA1162-G	
		(KV-28WS4A/28WS4D/28WS4K/28WS4R)		Q1305	8-729-216-22	TRANSISTOR 2SA1162-G	
	8-759-437-33	IC MSP3410B-PS-F7-T-ND		Q1306	8-729-216-22	TRANSISTOR 2SA1162-G	
		(KV-28WS4B/28WS4E)		Q1307	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC302	8-759-439-59	IC TDA9144/N2		Q1308	8-729-920-74	TRANSISTOR 2SC2412K-QR	
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)		Q1309	8-729-216-22	TRANSISTOR 2SA1162-G	
	8-759-439-58	IC TDA9143/N2 (KV-28WS4B)		Q1310	8-729-216-22	TRANSISTOR 2SA1162-G	
IC303	8-759-288-85	IC TDA4665T-T		Q1311	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC304	8-759-439-60	IC TDA9170T		Q1312	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC1001	8-759-351-92	IC SDA30C164-GEG		Q1313	8-729-216-22	TRANSISTOR 2SA1162-G	
IC1002	8-759-439-66	IC M27C4001-15C1-AE401		Q1314	8-729-920-74	TRANSISTOR 2SC2412K-QR	
	1-750-797-11	SOCKET PLCC ; IC1002		Q1401	8-729-038-96	TRANSISTOR IMZ1A-T109	
IC1003	8-759-378-21	IC ST24C16FB6		Q1402	8-729-038-96	TRANSISTOR IMZ1A-T109	
IC1004	8-759-259-18	IC MB3793-42PNF		Q1403	8-729-038-96	TRANSISTOR IMZ1A-T109	
IC1101	8-752-378-77	IC CXD2053S		Q1404	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC1201	8-759-439-65	IC TC9337F-015		Q1411	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC1202	8-759-264-22	IC TC9293F-EL		Q1412	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC1301	8-752-379-35	IC CXD2044Q-TL		Q2005	8-729-920-74	TRANSISTOR 2SC2412K-QR	
IC1302	8-759-711-62	IC NJM2240M		Q2006	8-729-027-59	TRANSISTOR DTC144EKA-T146	
IC1303	8-759-385-76	IC MC14052BDR2		Q2007	8-729-027-59	TRANSISTOR DTC144EKA-T146	
IC1401	8-759-439-58	IC TDA9143/N2					

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REF.NO.	PART NO.	DESCRIPTION	REMARK
< RESISTOR >			
C1212	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1001	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1002	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1003	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1004	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1006	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1008	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1009	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1010	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1011	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1339	1-216-295-91	METAL GLAZE 0 5%	1/10W
JR1340	1-216-295-91	METAL GLAZE 0 5%	1/10W
R102	1-216-025-91	METAL GLAZE 100 5%	1/10W
R103	1-216-025-91	METAL GLAZE 100 5%	1/10W
R104	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R106	1-216-033-00	METAL GLAZE 220 5%	1/10W
R107	1-216-295-91	METAL GLAZE 0 5%	1/10W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
R108	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R109	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R110	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R111	1-216-041-00	METAL GLAZE 470 5%	1/10W
R112	1-216-041-00	METAL GLAZE 470 5%	1/10W
R113	1-216-041-00	METAL GLAZE 470 5%	1/10W
R114	1-216-311-00	METAL GLAZE 6.8 5%	1/10W
R115	1-216-311-00	METAL GLAZE 6.8 5%	1/10W
R116	1-216-311-00	METAL GLAZE 6.8 5%	1/10W
R117	1-216-022-00	METAL GLAZE 75 5%	1/10W
R118	1-216-022-00	METAL GLAZE 75 5%	1/10W
R119	1-216-022-00	METAL GLAZE 75 5%	1/10W
R120	1-216-022-00	METAL GLAZE 75 5%	1/10W
R121	1-216-022-00	METAL GLAZE 75 5%	1/10W
R122	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R123	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R124	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R126	1-216-039-00	METAL GLAZE 390 5%	1/10W
R127	1-216-039-00	METAL GLAZE 390 5%	1/10W
R128	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R129	1-208-774-11	METAL CHIP 470 0.50%	1/10W (KV-28WS4B)
R130	1-216-039-00	METAL GLAZE 390 5%	1/10W
R131	1-216-039-00	METAL GLAZE 390 5%	1/10W
R132	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R133	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R134	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R135	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R136	1-216-022-00	METAL GLAZE 75 5%	1/10W
R137	1-216-033-00	METAL GLAZE 220 5%	1/10W
R138	1-216-022-00	METAL GLAZE 75 5%	1/10W
R139	1-216-033-00	METAL GLAZE 220 5%	1/10W
R141	1-216-033-00	METAL GLAZE 220 5%	1/10W
R142	1-216-033-00	METAL GLAZE 220 5%	1/10W
R143	1-216-025-91	METAL GLAZE 100 5%	1/10W
R144	1-216-025-91	METAL GLAZE 100 5%	1/10W
R146	1-216-033-00	METAL GLAZE 220 5%	1/10W
R148	1-208-774-11	METAL CHIP 470 0.50%	1/10W (KV-28WS4B)

REF.NO.	PART NO.	DESCRIPTION	REMARK
R149	1-216-073-00	METAL GLAZE 10K 5%	1/10W (KV-28WS4B)
R151	1-208-774-11	METAL CHIP 470 0.50%	1/10W (KV-28WS4B)
R152	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R153	1-216-311-00	METAL GLAZE 6.8 5%	1/10W
R154	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R155	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R156	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W (KV-28WS4B)
R157	1-216-025-91	METAL GLAZE 100 5%	1/10W (KV-28WS4B)
R159	1-216-304-11	METAL GLAZE 3.3 5%	1/10W
R160	1-216-039-00	METAL GLAZE 390 5%	1/10W
R162	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R163	1-216-039-00	METAL GLAZE 390 5%	1/10W
R166	1-216-039-00	METAL GLAZE 390 5%	1/10W
R167	1-216-039-00	METAL GLAZE 390 5%	1/10W
R168	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R169	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R170	1-216-021-00	METAL GLAZE 68 5%	1/10W
R171	1-216-021-00	METAL GLAZE 68 5%	1/10W
R172	1-216-021-00	METAL GLAZE 68 5%	1/10W
R173	1-216-021-00	METAL GLAZE 68 5%	1/10W
R175	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R176	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R177	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R178	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R179	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R180	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R181	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R182	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R183	1-216-033-00	METAL GLAZE 220 5%	1/10W
R184	1-216-033-00	METAL GLAZE 220 5%	1/10W
R185	1-216-033-00	METAL GLAZE 220 5%	1/10W
R186	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R187	1-216-107-00	METAL GLAZE 270K 5%	1/10W
R188	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R189	1-218-755-11	METAL CHIP 130K 0.50%	1/10W
R190	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R191	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R192	1-216-041-00	METAL GLAZE 470 5%	1/10W
R193	1-216-041-00	METAL GLAZE 470 5%	1/10W
R194	1-216-041-00	METAL GLAZE 470 5%	1/10W
R195	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R196	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R197	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R198	1-216-113-00	METAL GLAZE 470K 5%	1/10W
R199	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R200	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R201	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R202	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R203	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R204	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R205	1-216-037-00	METAL GLAZE 330 5%	1/10W
R207	1-216-039-00	METAL GLAZE 390 5%	1/10W
R208	1-216-039-00	METAL GLAZE 390 5%	1/10W
R209	1-216-025-91	METAL GLAZE 100 5%	1/10W
R210	1-216-025-91	METAL GLAZE 100 5%	1/10W
R211	1-216-025-91	METAL GLAZE 100 5%	1/10W



REF.NO.	PART NO.	DESCRIPTION	REMARK
R212	1-216-025-91	METAL GLAZE 100 5%	1/10W
R213	1-216-025-91	METAL GLAZE 100 5%	1/10W
R214	1-216-025-91	METAL GLAZE 100 5%	1/10W
R215	1-216-025-91	METAL GLAZE 100 5%	1/10W
R272	1-216-295-91	METAL GLAZE 0 5%	1/10W
R311	1-216-095-00	METAL GLAZE 82K 5%	1/10W
R312	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R313	1-216-025-91	METAL GLAZE 100 5%	1/10W
R314	1-216-033-00	METAL GLAZE 220 5%	1/10W
R315	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R317	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R330	1-216-041-00	METAL GLAZE 470 5%	1/10W
R331	1-216-041-00	METAL GLAZE 470 5%	1/10W
R332	1-216-041-00	METAL GLAZE 470 5%	1/10W
R333	1-216-041-00	METAL GLAZE 470 5%	1/10W
R334	1-216-041-00	METAL GLAZE 470 5%	1/10W
R335	1-216-041-00	METAL GLAZE 470 5%	1/10W
R336	1-216-041-00	METAL GLAZE 470 5%	1/10W
R337	1-216-041-00	METAL GLAZE 470 5%	1/10W
R338	1-216-041-00	METAL GLAZE 470 5%	1/10W
R340	1-216-025-91	METAL GLAZE 100 5%	1/10W
R341	1-216-025-91	METAL GLAZE 100 5%	1/10W
R342	1-216-025-91	METAL GLAZE 100 5%	1/10W
R343	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R345	1-216-025-91	METAL GLAZE 100 5%	1/10W
R351	1-216-037-00	METAL GLAZE 330 5%	1/10W
R352	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R353	1-216-041-00	METAL GLAZE 470 5%	1/10W
R374	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R375	1-216-308-00	METAL GLAZE 4.7 5%	1/10W
R1001	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1011	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1012	1-216-041-00	METAL GLAZE 470 5%	1/10W
R1030	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1033	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1034	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1036	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1037	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1038	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1039	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1040	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1041	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1042	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1043	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1044	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1045	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1046	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1047	1-216-009-00	METAL GLAZE 22 5%	1/10W
R1048	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R1050	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1051	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1052	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1053	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1054	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1056	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1057	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1058	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1059	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1060	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1061	1-216-049-91	METAL GLAZE 1K 5%	1/10W

REF.NO.	PART NO.	DESCRIPTION	REMARK
R1062	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1063	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1070	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1071	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1075	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1101	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1102	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1103	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1104	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1105	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1106	1-216-001-00	METAL GLAZE 10 5%	1/10W
R1107	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1108	1-216-013-00	METAL GLAZE 33 5%	1/10W
R1109	1-216-005-00	METAL GLAZE 15 5%	1/10W
R1110	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1111	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R1112	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1113	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1115	1-216-009-00	METAL GLAZE 22 5%	1/10W
R1201	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R1202	1-216-097-91	METAL GLAZE 100K 5%	1/10W
R1203	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1204	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1206	1-216-295-91	METAL GLAZE 0 5%	1/10W
R1208	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1209	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1210	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1211	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1212	1-216-017-91	METAL GLAZE 47 5%	1/10W
R1213	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1214	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1215	1-216-190-00	METAL GLAZE 470 5%	1/8W
R1220	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1221	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1222	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1223	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1224	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1225	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1301	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1302	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R1303	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1304	1-216-037-00	METAL GLAZE 330 5%	1/10W
R1305	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1306	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1307	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R1308	1-216-017-91	METAL GLAZE 47 5%	1/10W
R1309	1-216-017-91	METAL GLAZE 47 5%	1/10W
R1310	1-216-039-00	METAL GLAZE 390 5%	1/10W
R1311	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R1319	1-216-043-91	METAL GLAZE 560 5%	1/10W
R1320	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R1321	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1325	1-216-009-00	METAL GLAZE 22 5%	1/10W
R1330	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R1331	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R1332	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R1333	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R1334	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1335	1-216-033-00	METAL GLAZE 220 5%	1/10W
R1336	1-208-784-11	METAL CHIP 1.2K 0.50%	1/10W

A

G

The components identified by shading and marked **A** are critical for safety.
Replace only with the part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK
R1337	1-216-666-11	METAL CHIP 4.3K 0.50% 1/10W	
R1338	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1339	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1340	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R1341	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R1342	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R1344	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R1346	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R1347	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R1348	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R1349	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R1350	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R1351	1-216-047-91	METAL GLAZE 820 5% 1/10W	
R1352	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R1353	1-216-047-91	METAL GLAZE 820 5% 1/10W	
R1354	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R1401	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
R1402	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R1403	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1404	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1405	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R1406	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R1407	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R1410	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1411	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1412	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1413	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1414	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1415	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1416	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1417	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1418	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R1426	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1427	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1428	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R1461	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R1462	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R1463	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R2001	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2002	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2020	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R2021	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R2022	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R2023	1-216-063-91	METAL GLAZE 3.9K 5% 1/10W	
R2024	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2025	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2026	1-216-025-91	METAL GLAZE 100 5% 1/10W	
R2027	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R2028	1-216-009-00	METAL GLAZE 22 5% 1/10W	
R2031	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2032	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2033	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2034	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R2035	1-216-017-91	METAL GLAZE 47 5% 1/10W	
R2037	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
R2040	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R2041	1-216-025-91	METAL GLAZE 100 5% 1/10W	

REF.NO.	PART NO.	DESCRIPTION	REMARK
< TUNER >			
TU101	1-693-338-21	TUNER/VIF (AEP) (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
	1-693-340-21	TUNER/VIF (FR) (KV-28WS4B)	
< CRYSTAL >			
X200	1-760-628-11	VIBRATOR, CRYSTAL (18.432MHz)	
X301	1-567-505-11	OSCILLATOR, CRYSTAL (3.58MHz)	
X302	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)	
X1001	1-760-551-21	VIBRATOR, CERAMIC (20.48MHz)	
X1101	1-767-342-21	VIBRATOR, CRYSTAL (14.32MHz)	
X1401	1-567-505-11	OSCILLATOR, CRYSTAL (3.58MHz)	
X1402	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)	

*A-1636-018-A G BOARD, COMPLETE			

	4-382-854-11	SCREW (M3X10), P, SW (+)	
< CAPACITOR >			
C602	1-165-127-11	CERAMIC 470PF 10% 500V	
C603	1-165-127-11	CERAMIC 470PF 10% 500V	
C604	1-136-171-00	FILM 0.33MF 5% 50V	
C605	1-137-399-11	FILM 0.1MF 5% 50V	
C606	1-136-171-00	FILM 0.33MF 5% 50V	
C607	1-137-399-11	FILM 0.1MF 5% 50V	
C608	1-164-625-11	CERAMIC 680PF 10% 500V	
C609	1-129-718-00	FILM 0.022MF 5% 630V	
C610	1-126-953-11	ELECT 2200MF 20% 35V	
C611	1-126-953-11	ELECT 2200MF 20% 35V	
C612	1-124-903-11	ELECT 1MF 20% 50V	
C613	1-128-548-11	ELECT 4700MF 20% 25V	
C614	1-128-548-11	ELECT 4700MF 20% 25V	
C615	1-110-626-11	ELECT 330MF 20% 160V	
C616	1-164-625-11	CERAMIC 680PF 10% 500V	
C617	1-136-559-11	MYLAR 0.0047MF 10% 400V	
C618	1-104-989-91	FILM 0.0022MF 5% 200V	
C621	1-136-519-12	FILM 0.47MF 20% 300V	
C622	1-136-518-12	FILM 0.33MF 20% 300V	
C624	1-111-890-61	CERAMIC 9.0022MF 20% 250V	
C626	1-164-503-61	CERAMIC 0.0022MF 20% 400V	
C627	1-126-940-11	ELECT 330MF 20% 25V	
C628	1-126-965-11	ELECT 22MF 20% 50V	
C629	1-162-599-12	CERAMIC 0.0047MF 250V	
C630	1-162-599-12	CERAMIC 0.0047MF 250V	
C631	1-161-961-91	CERAMIC 0.0047MF 250V	
C633	1-125-555-11	ELECT 330MF 20% 400V	
C635	1-136-165-00	FILM 0.1MF 5% 50V	
C636	1-136-165-00	FILM 0.1MF 5% 50V	
C637	1-126-964-11	ELECT 10MF 20% 50V	
C642	1-162-580-51	CERAMIC 0.01MF 400V	
C648	1-101-001-00	CERAMIC 0.001MF 50V	
C650	1-126-964-11	ELECT 10MF 50V	
C651	1-136-171-00	FILM 0.33MF 5% 50V	
C662	1-124-563-11	ELECT 2200MF 20% 25V	
C663	1-126-964-11	ELECT 10MF 20% 50V	
C664	1-102-129-00	CERAMIC 0.01MF 10% 50V	
C665	1-126-940-11	ELECT 330MF 20% 25V	

G


The components identified by shading and marked Δ are critical for safety.
Replace only with the part number specified.


Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
< CONNECTOR >							
CN0008	Δ 1-508-786-11	PIN, CONNECTOR (5MM PITCH) 2P		Q603	8-729-119-78	TRANSISTOR 2SC2785-HFE	
CN0009	Δ 1-508-785-11	PIN, CONNECTOR (5MM PITCH) 3P		Q604	8-729-200-21	TRANSISTOR 2SC2500-B	
CN0701	1-573-299-21	CONNECTOR, BOARD TO BOARD 10P		Q605	8-729-119-76	TRANSISTOR 2SA1175-HFE	
CN0702	1-695-300-11	CONNECTOR, BOARD TO BOARD 20P		Q608	8-729-200-21	TRANSISTOR 2SC2500-B	
CN0703	Δ 1-691-291-11	PIN, CONNECTOR (PC BOARD) 32		Q610	8-729-119-76	TRANSISTOR 2SA1175-HFE	
< DIODE >				Q611	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D601	8-719-510-53	DIODE D4SB60L		Q612	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D602	8-719-991-33	DIODE 1SS133T-77		Q615	8-729-200-21	TRANSISTOR 2SC2500-B	
D603	8-719-109-89	DIODE RD5.6ESB2		Q621	8-729-200-21	TRANSISTOR 2SC2500-B	
D605	8-719-047-31	DIODE RBA-402L		< RESISTOR >			
D607	8-719-510-12	DIODE D10SC4M		R601	1-202-933-61	FUSIBLE 0.1 10% 1/2W F	
D608	8-719-510-12	DIODE D10SC4M		R602	1-247-891-00	CARBON 330K 5% 1/4W	
D609	8-719-047-31	DIODE RBA-402L		R603	1-247-891-00	CARBON 330K 5% 1/4W	
D610	8-719-312-39	DIODE R2K-V1		R604	1-216-369-00	METAL OXIDE 1 5% 2W F	
D611	8-719-510-64	DIODE S2LA20F		R605	1-247-891-00	CARBON 330K 5% 1/4W	
D614	8-719-911-19	DIODE 1SS119-25		R606	1-247-891-00	CARBON 330K 5% 1/4W	
D615	8-719-911-19	DIODE 1SS119-25		R607	1-216-369-00	METAL OXIDE 1 5% 2W F	
D616	8-719-911-19	DIODE 1SS119-25		R608	1-247-887-00	CARBON 220K 5% 1/4W	
D617	8-719-911-19	DIODE 1SS119-25		R609	1-249-429-11	CARBON 10K 5% 1/4W F	
D618	8-719-911-19	DIODE 1SS119-25		R610	1-249-419-11	CARBON 1.5K 5% 1/4W F	
D619	8-719-911-19	DIODE 1SS119-25		R611	1-249-377-11	CARBON 0.47 5% 1/4W F	
D620	8-719-911-19	DIODE 1SS119-25		Δ R616	Δ 1-205-949-11	WIREWOUND 1.8 5% 10W	
D621	8-719-911-19	DIODE 1SS119-25		Δ R617	Δ 1-205-949-11	WIREWOUND 1.8 5% 10W	
D622	8-719-510-64	DIODE S2LA20F		Δ R619	Δ 1-244-945-91	CARBON 1M 5% 1/2W	
D623	8-719-510-64	DIODE S2LA20F		Δ R620	Δ 1-218-265-81	METAL 2.2M 5% 1W	
D625	8-719-911-19	DIODE 1SS119-25		R621	1-249-417-11	CARBON 1K 5% 1/4W F	
D626	8-719-911-19	DIODE 1SS119-25		R622	1-249-430-11	CARBON 12K 5% 1/4W	
D627	8-719-911-19	DIODE 1SS119-25		R623	1-249-436-11	CARBON 39K 5% 1/4W	
D628	8-719-911-19	DIODE 1SS119-25		R624	1-249-425-11	CARBON 4.7K 5% 1/4W	
D630	8-719-991-33	DIODE 1SS133T-77		R625	1-247-815-91	CARBON 220 5% 1/4W	
D633	8-719-991-33	DIODE 1SS133T-77		R626	1-247-863-91	CARBON 22K 5% 1/4W	
D634	8-719-991-33	DIODE 1SS133T-77		R627	1-247-815-91	CARBON 220 5% 1/4W	
D636	8-719-511-40	DIODE S1VB40		R628	1-247-807-31	CARBON 100 5% 1/4W	
< FERRITE BEAD >				R636	1-207-905-00	WIREWOUND 0.27 10% 2W F	
FB601	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH		R637	1-249-389-11	CARBON 4.7 5% 1/4W F	
FB602	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH		R639	1-247-791-91	CARBON 22 5% 1/4W	
FB603	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH		R640	1-247-791-91	CARBON 22 5% 1/4W	
FB604	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH		R641	1-247-791-91	CARBON 22 5% 1/4W	
< IC >				R642	1-247-791-91	CARBON 22 5% 1/4W	
IC601	1-810-051-11	POWER MODULE DM-48		R651	1-215-880-00	METAL OXIDE 10 5% 2W F	
Δ IC602	Δ 8-749-010-65	PHOTO COUPLER PC123FV1		R652	1-247-891-00	CARBON 330K 5% 1/4W	
IC603	8-759-510-52	IC TEA7605		R653	1-247-891-00	CARBON 330K 5% 1/4W	
< PROTECTOR MODULE >				R654	1-247-891-00	CARBON 330K 5% 1/4W	
Δ PM501	Δ 1-801-550-21	PROTECTOR MODULE 2.5A MP250		R655	1-247-891-00	CARBON 330K 5% 1/4W	
Δ PM502	Δ 1-801-550-21	PROTECTOR MODULE 2.5A MP250		R656	1-249-439-11	CARBON 68K 5% 1/4W	
Δ PM504	Δ 1-801-550-21	PROTECTOR MODULE 2.5A MP250		R657	1-249-429-11	CARBON 10K 5% 1/4W	
Δ PM505	Δ 1-801-549-21	PROTECTOR MODULE 4.0A MP400		R658	1-249-421-11	CARBON 2.2K 5% 1/4W	
< COIL >				R659	1-249-425-11	CARBON 4.7K 5% 1/4W	
L605	1-412-523-11	INDUCTOR 6.8UH		R660	1-249-429-11	CARBON 10K 5% 1/4W	
L606	1-412-523-11	INDUCTOR 6.8UH		R661	1-249-421-11	CARBON 2.2K 5% 1/4W	
< TRANSISTOR >				R662	1-249-421-11	CARBON 2.2K 5% 1/4W	
Q601	8-729-032-87	TRANSISTOR 2SC4834NP-F09		R663	1-249-429-11	CARBON 10K 5% 1/4W	
Q602	8-729-032-87	TRANSISTOR 2SC4834NP-F09		R664	1-249-429-11	CARBON 10K 5% 1/4W	
				R667	1-249-377-11	CARBON 0.47 5% 1/4W F	
				R670	1-249-417-11	CARBON 1K 5% 1/4W	
				< RELAY >			
				Δ RY601	Δ 1-755-167-11	RELAY AC POWER	
				Δ RY602	Δ 1-755-167-11	RELAY AC POWER	

G

C


The components identified by shading and marked  are critical for safety.
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Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
< TRANSFORMER >							
16502	1-428-860-11	TRANSFORMER, LINE FILTER		D720	8-719-901-83	DIODE 1SS83	
16501	1-428-844-11	TRANSFORMER, CONVERTER (PT)		D721	8-719-901-83	DIODE 1SS83	
16502	1-428-844-11	TRANSFORMER, CONVERTER (PT)		D722	8-719-901-83	DIODE 1SS83	
16503	1-428-852-11	TRANSFORMER		D723	8-719-901-83	DIODE 1SS83	
< THERMISTOR >				D724	8-719-018-82	DIODE RGP02-20EL-6394	
16501	1-801-071-51	THERMISTOR, POSITIVE		< IC >			
< VARISTOR >				IC703	8-759-073-90	IC TDA6111Q	
VDR601	1-810-977-21	VARISTOR ERZV10D621		IC704	8-759-073-90	IC TDA6111Q	
*****				IC705	8-759-073-90	IC TDA6111Q	
*A-1638-092-A C BOARD, COMPLETE				< CRT SOCKET >			
*****				1701	1-528-940-11	SOCKET, CRT	
4-382-854-11 SCREW (M3X10), P, SW (+)				< COIL >			
< CAPACITOR >				L701	1-410-671-31	INDUCTOR 47UH	
C701	1-107-666-11	ELECT 1MF 20% 350V		L704	1-408-405-00	INDUCTOR 4.7UH	
C702	1-107-666-11	ELECT 1MF 20% 350V		L705	1-408-405-00	INDUCTOR 4.7UH	
C703	1-107-666-11	ELECT 1MF 20% 350V		L706	1-408-405-00	INDUCTOR 4.7UH	
C704	1-102-129-00	CERAMIC 0.01MF 10% 50V		L709	1-408-409-00	INDUCTOR 10UH	
C705	1-126-941-11	ELECT 470MF 20% 16V		< TRANSISTOR >			
C706	1-126-941-11	ELECT 470MF 20% 16V		Q701	8-729-255-12	TRANSISTOR 2SC2551	
C708	1-126-941-11	ELECT 470MF 20% 16V		Q702	8-729-255-12	TRANSISTOR 2SC2551	
C709	1-102-157-00	CERAMIC 560PF 10% 500V		Q703	8-729-255-12	TRANSISTOR 2SC2551	
C710	1-102-157-00	CERAMIC 560PF 10% 500V		Q704	8-729-026-41	TRANSISTOR 2SA933AS-QRT	
C711	1-102-157-00	CERAMIC 560PF 10% 500V		Q705	8-729-029-56	TRANSISTOR DTA144ESA	
C712	1-126-965-11	ELECT 22MF 20% 50V		Q706	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C713	1-162-116-00	CERAMIC 680PF 10% 2KV		Q707	8-729-173-38	TRANSISTOR 2SA733-K	
C714	1-162-115-00	CERAMIC 330PF 10% 2KV		< RESISTOR >			
C716	1-162-116-00	CERAMIC 680PF 10% 2KV		R701	1-249-420-11	CARBON 1.8K 5% 1/4W	
C717	1-102-129-00	CERAMIC 0.01MF 10% 50V		R702	1-249-425-11	CARBON 4.7K 5% 1/4W	
C718	1-102-129-00	CERAMIC 0.01MF 10% 50V		R703	1-249-435-11	CARBON 33K 5% 1/4W	
C719	1-124-903-11	ELECT 1MF 20% 50V		R704	1-249-429-11	CARBON 10K 5% 1/4W	
C720	1-123-947-00	ELECT 10MF 20% 250V		R705	1-249-430-11	CARBON 12K 5% 1/4W	
C723	1-162-116-00	CERAMIC 680PF 10% 2KV		R706	1-247-863-91	CARBON 22K 5% 1/4W	
< CONNECTOR >				R707	1-247-863-91	CARBON 22K 5% 1/4W	
CN0004	1-695-915-11	TAB (CONTACT)		R708	1-247-863-91	CARBON 22K 5% 1/4W	
CN0403	*1-564-512-11	PLUG, CONNECTOR 9P		R709	1-249-416-11	CARBON 820 5% 1/4W	
CN0421	*1-508-767-00	PIN, CONNECTOR (5MM PITCH) 5P		R710	1-249-416-11	CARBON 820 5% 1/4W	
< DIODE >				R711	1-249-416-11	CARBON 820 5% 1/4W	
D701	8-719-991-33	DIODE 1SS133T-77		R712	1-249-421-11	CARBON 2.2K 5% 1/4W	
D702	8-719-901-83	DIODE 1SS83		R713	1-249-417-11	CARBON 1K 5% 1/4W	
D703	8-719-901-83	DIODE 1SS83		R714	1-249-417-11	CARBON 1K 5% 1/4W	
D704	8-719-901-83	DIODE 1SS83		R715	1-249-417-11	CARBON 1K 5% 1/4W	
D705	8-719-991-33	DIODE 1SS133T-77		R716	1-249-417-11	CARBON 1K 5% 1/4W	
D706	8-719-908-03	DIODE GP08D		R717	1-249-417-11	CARBON 1K 5% 1/4W	
D707	8-719-991-33	DIODE 1SS133T-77		R718	1-249-417-11	CARBON 1K 5% 1/4W	
D712	8-719-923-60	DIODE MTZJ-T-77-9.1A		R719	1-249-417-11	CARBON 1K 5% 1/4W	
D714	8-719-921-88	DIODE MTZJ-T-13B		R720	1-215-926-00	METAL OXIDE 33K 5% 3W F	
D715	8-719-911-19	DIODE 1SS119-25		R721	1-215-926-00	METAL OXIDE 33K 5% 3W F	
D716	8-719-911-19	DIODE 1SS119-25		R722	1-215-926-00	METAL OXIDE 33K 5% 3W F	
D717	8-719-911-19	DIODE 1SS119-25		R723	1-249-408-11	CARBON 180 5% 1/4W	
D718	8-719-982-96	DIODE MTZJ-T-77-2.2A		R724	1-249-408-11	CARBON 180 5% 1/4W	
D719	8-719-982-96	DIODE MTZJ-T-77-2.2A		R725	1-249-408-11	CARBON 180 5% 1/4W	
				R726	1-202-565-00	SOLID 470 20% 1/2W	
				R727	1-202-565-00	SOLID 470 20% 1/2W	
				R728	1-202-565-00	SOLID 470 20% 1/2W	
				R729	1-249-424-11	CARBON 3.9K 5% 1/4W	
				R730	1-249-424-11	CARBON 3.9K 5% 1/4W	



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R731	1-249-424-11	CARBON	3.9K 5% 1/4W	C652	1-136-171-00	FILM	0.33MF 5% 50V
R732	1-202-549-00	SOLID	100 20% 1/2W	C653	1-104-661-91	ELECT	330MF 20% 16V
R733	1-247-863-91	CARBON	22K 5% 1/4W	C654	1-104-664-11	ELECT	47MF 20% 25V
R734	1-202-549-00	SOLID	100 20% 1/2W	C656	1-126-967-11	ELECT	47MF 20% 16V
R735	1-249-416-11	CARBON	820 5% 1/4W	C657	1-136-165-00	FILM	0.1MF 5% 50V
R741	1-202-884-11	SOLID	820K 20% 1/2W	C658	1-136-165-00	FILM	0.1MF 5% 50V
R743	1-202-884-11	SOLID	820K 20% 1/2W	C659	1-136-165-00	FILM	0.1MF 5% 50V
R750	1-249-429-11	CARBON	10K 5% 1/4W	C660	1-136-164-00	FILM	0.082MF 5% 50V
R751	1-249-438-11	CARBON	56K 5% 1/4W	C666	1-104-661-91	ELECT	330MF 20% 16V
R752	1-249-417-11	CARBON	1K 5% 1/4W F	C667	1-136-165-00	FILM	0.1MF 5% 50V
R753	1-215-911-11	METAL OXIDE	100 5% 3W F	C668	1-136-165-00	FILM	0.1MF 5% 50V
R754	1-202-841-00	SOLID	180K 20% 1/2W	C669	1-136-165-00	FILM	0.1MF 5% 50V
R755	1-249-429-11	CARBON	10K 5% 1/4W	C670	1-136-165-00	FILM	0.1MF 5% 50V
R756	1-249-432-11	CARBON	18K 5% 1/4W	C671	1-136-165-00	FILM	0.1MF 5% 50V
R757	1-249-431-11	CARBON	15K 5% 1/4W	C801	1-123-024-21	ELECT	33MF 160V
< VARIABLE RESISTOR >				C802	1-136-207-11	FILM	0.047MF 10% 250V
RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M		C804	1-102-110-00	CERAMIC	220PF 10% 50V
RV704	1-241-656-21	RES, ADJ, METAL FILM 110M		C805	1-102-117-00	CERAMIC	820PF 10% 50V
*****				C807	1-162-129-00	CERAMIC	150PF 10% 2KV
*A-1640-244-A D BOARD, COMPLETE				C808	1-162-116-00	CERAMIC	680PF 10% 2KV
*****				C809	1-162-116-00	CERAMIC	680PF 10% 2KV
4-382-854-11	SCREW (M3X10), P, SW (+)			C810	1-136-558-11	FILM	0.0039MF 10% 400V
< CAPACITOR >				C811	1-109-948-11	FILM	0.015MF 3% 2.5KV
C101	1-126-965-11	ELECT	22MF 20% 50V	C812	1-129-722-00	FILM	0.047MF 10% 630V
C236	1-136-165-00	FILM	0.1MF 5% 50V	C813	1-109-844-11	FILM	0.68MF 5% 400V
C237	1-136-165-00	FILM	0.1MF 5% 50V	C814	1-129-702-00	FILM	0.001MF 10% 400V
C238	1-126-967-11	ELECT	47MF 20% 16V	C816	1-109-844-11	FILM	0.68MF 5% 400V
C241	1-126-967-11	ELECT	47MF 20% 16V	C817	1-136-759-11	FILM	0.039MF 5% 630V
C242	1-126-953-11	ELECT	2200MF 20% 35V	C819	1-137-102-11	FILM	0.022MF 10% 250V
C243	1-136-165-00	FILM	0.1MF 5% 50V	C822	1-126-967-11	ELECT	47MF 20% 50V
C244	1-126-953-11	ELECT	2200MF 20% 35V	C823	1-102-129-00	CERAMIC	0.01MF 10% 50V
C245	1-136-165-00	FILM	0.1MF 5% 50V	C824	1-162-117-00	CERAMIC	100PF 10% 500V
C260	1-126-964-11	ELECT	10MF 20% 50V	C825	1-126-964-11	ELECT	10MF 20% 50V
C261	1-126-964-11	ELECT	10MF 20% 50V	C827	1-102-228-00	CERAMIC	470PF 10% 500V
C262	1-104-665-11	ELECT	100MF 20% 25V	C835	1-107-655-11	ELECT	47MF 20% 250V
C263	1-136-165-00	FILM	0.1MF 5% 50V	C836	1-102-228-00	CERAMIC	470PF 10% 500V
C264	1-126-933-11	ELECT	100MF 20% 16V	C837	1-102-228-00	CERAMIC	470PF 10% 500V
C265	1-136-165-00	FILM	0.1MF 5% 50V	C838	1-102-228-00	CERAMIC	470PF 10% 500V
C266	1-104-665-11	ELECT	100MF 20% 25V	C841	1-106-375-12	MYLAR	0.022MF 10% 250V
C267	1-162-318-11	CERAMIC	0.001MF 10% 500V	C842	1-106-363-00	MYLAR	0.0068MF 10% 400V
C268	1-162-318-11	CERAMIC	0.001MF 10% 500V	C852	1-126-968-11	ELECT	100MF 20% 50V
C269	1-126-967-11	ELECT	47MF 20% 16V	C854	1-102-129-00	CERAMIC	0.01MF 10% 50V
C270	1-136-165-00	FILM	0.1MF 5% 50V	C855	1-126-941-11	ELECT	470MF 20% 25V
C271	1-126-965-11	ELECT	22MF 20% 50V	C856	1-102-129-00	CERAMIC	0.01MF 10% 50V
C272	1-136-165-00	FILM	0.1MF 5% 50V	C857	1-126-941-11	ELECT	470MF 20% 25V
C273	1-136-161-00	FILM	0.047MF 5% 50V	C860	1-106-220-00	MYLAR	0.1MF 10% 100V
C274	1-124-925-11	ELECT	2.2MF 20% 50V	C862	1-130-789-00	FILM	1MF 5% 100V
C275	1-124-925-11	ELECT	2.2MF 20% 50V	C866	1-137-040-11	FILM	0.0022MF 10% 400V
C276	1-126-967-11	ELECT	47MF 20% 16V	C867	1-107-909-11	ELECT	47MF 20% 50V
C277	1-126-934-11	ELECT	220MF 20% 16V	C873	1-161-754-00	CERAMIC	0.001MF 10% 2KV
C278	1-107-714-11	ELECT	10MF 20% 16V	C874	1-164-645-11	CERAMIC	1000PF 10% 500V
C279	1-126-965-11	ELECT	22MF 20% 50V	C900	1-101-810-00	CERAMIC	100PF 5% 500V
C280	1-136-169-00	FILM	0.22MF 5% 50V	C901	1-101-810-00	CERAMIC	100PF 5% 500V
C281	1-126-967-11	ELECT	47MF 20% 16V	C902	1-137-372-11	FILM	0.022MF 5% 50V
C283	1-136-169-00	FILM	0.22MF 5% 50V	C903	1-137-372-11	FILM	0.022MF 5% 50V
C620	1-126-967-11	ELECT	47MF 20% 50V	C905	1-126-964-11	ELECT	10MF 20% 50V
C639	1-126-964-11	ELECT	10MF 20% 50V	C907	1-124-903-11	ELECT	1MF 20% 50V
				C908	1-124-903-11	ELECT	1MF 20% 50V
				C910	1-126-967-11	ELECT	47MF 20% 50V
				C911	1-126-967-11	ELECT	47MF 20% 50V

Les composants identifiés par une trame et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
Q277	8-729-173-38	TRANSISTOR 2SA733-K		R285	1-249-425-11	CARBON 4.7K 5%	1/4W
Q278	8-729-119-78	TRANSISTOR 2SC2785-HFE		R286	1-249-421-11	CARBON 2.2K 5%	1/4W
Q279	8-729-119-78	TRANSISTOR 2SC2785-HFE		R287	1-249-412-11	CARBON 390 5%	1/4W
Q280	8-729-119-78	TRANSISTOR 2SC2785-HFE		R288	1-249-421-11	CARBON 2.2K 5%	1/4W
				R289	1-249-421-11	CARBON 2.2K 5%	1/4W
Q281	8-729-119-78	TRANSISTOR 2SC2785-HFE		R290	1-247-807-31	CARBON 100 5%	1/4W
Q282	8-729-119-78	TRANSISTOR 2SC2785-HFE		R291	1-249-421-11	CARBON 2.2K 5%	1/4W
Q606	8-729-119-78	TRANSISTOR 2SC2785-HFE		R292	1-249-429-11	CARBON 10K 5%	1/4W
Q607	8-729-029-56	TRANSISTOR DTA144ESA		R293	1-249-429-11	CARBON 10K 5%	1/4W
Q613	8-729-030-03	TRANSISTOR DTC144ESA-TP		R294	1-249-429-11	CARBON 10K 5%	1/4W
Q614	8-729-029-56	TRANSISTOR DTA144ESA		R295	1-247-885-00	CARBON 180K 5%	1/4W
Q616	8-729-030-03	TRANSISTOR DTC144ESA-TP		R296	1-247-885-00	CARBON 180K 5%	1/4W
Q617	8-729-029-67	TRANSISTOR DTC114ESA-TP		R297	1-247-807-31	CARBON 100 5%	1/4W
Q618	8-729-029-56	TRANSISTOR DTA144ESA		R298	1-247-807-31	CARBON 100 5%	1/4W
Q620	8-729-119-78	TRANSISTOR 2SC2785-HFE		R630	1-249-429-11	CARBON 10K 5%	1/4W
Q624	8-729-119-78	TRANSISTOR 2SC2785-HFE		R631	1-215-477-00	METAL 220K 1%	1/4W
Q801	8-729-119-80	TRANSISTOR 2SC2688-LK		R632	1-249-417-11	CARBON 1K 5%	1/4W
Q802	8-729-821-07	TRANSISTOR 2SC3997CA		R633	1-249-429-11	CARBON 10K 5%	1/4W
	4-200-399-01	SPACER, IC ; Q802		R634	1-247-895-91	CARBON 470K 5%	1/4W
Q803	8-729-039-68	TRANSISTOR IRF620		R635	1-215-926-00	METAL OXIDE 33K 5%	3W F
	4-202-373-01	SPRING, IC ; Q803					
Q804	8-729-039-68	TRANSISTOR IRF620		R638	1-249-425-11	CARBON 4.7K 5%	1/4W
Q1610	8-729-119-78	TRANSISTOR 2SC2785-HFE		R644	1-249-425-11	CARBON 4.7K 5%	1/4W
Q1611	8-729-017-06	TRANSISTOR 2SC4793		R645	1-249-410-11	CARBON 270 5%	1/4W
Q2701	8-729-119-78	TRANSISTOR 2SC2785-HFE		R646	1-249-403-11	CARBON 68 5%	1/4W
				R647	1-249-420-11	CARBON 1.8K 5%	1/4W
< RESISTOR >							
R236	1-249-424-11	CARBON 3.9K 5%	1/4W	R665	1-249-425-11	CARBON 4.7K 5%	1/4W
R237	1-249-417-11	CARBON 1K 5%	1/4W	R666	1-249-413-11	CARBON 470 5%	1/4W
R239	1-249-424-11	CARBON 3.9K 5%	1/4W	R676	1-249-437-11	CARBON 47K 5%	1/4W
R240	1-249-417-11	CARBON 1K 5%	1/4W	R677	1-249-437-11	CARBON 47K 5%	1/4W
R244	1-249-413-11	CARBON 470 5%	1/4W	R678	1-249-421-11	CARBON 2.2K 5%	1/4W
R245	1-249-430-11	CARBON 12K 5%	1/4W	R679	1-247-815-91	CARBON 220 5%	1/4W
R246	1-249-430-11	CARBON 12K 5%	1/4W	R802	1-215-916-00	METAL OXIDE 680 5%	3W F
R247	1-249-413-11	CARBON 470 5%	1/4W	R803	1-215-916-00	METAL OXIDE 680 5%	3W F
R248	1-249-425-11	CARBON 4.7K 5%	1/4W	R804	1-215-916-00	METAL OXIDE 680 5%	3W F
R249	1-216-357-00	METAL OXIDE 4.7 5%	1W F	R805	1-215-923-00	METAL OXIDE 10K 5%	3W F
R250	1-216-357-00	METAL OXIDE 4.7 5%	1W F	R806	1-249-411-11	CARBON 330 5%	1/4W
R251	1-249-429-11	CARBON 10K 5%	1/4W	R807	1-247-843-11	CARBON 3.3K 5%	1/4W
R252	1-249-429-11	CARBON 10K 5%	1/4W	R808	1-216-385-11	METAL OXIDE 0.47 5%	3W F
R255	1-249-411-11	CARBON 330 5%	1/4W	R809	1-215-880-00	METAL OXIDE 10 5%	2W F
R256	1-249-411-11	CARBON 330 5%	1/4W	R810	1-215-914-11	METAL OXIDE 330 5%	3W F
R260	1-247-863-91	CARBON 22K 5%	1/4W	R811	1-216-434-11	METAL OXIDE 1.8K 5%	1W F
R261	1-247-863-91	CARBON 22K 5%	1/4W	R817	1-202-972-61	FUSIBLE 1 5%	1/4W F
R262	1-249-421-11	CARBON 2.2K 5%	1/4W	R818	1-249-377-11	CARBON 0.47 5%	1/4W F
R263	1-249-421-11	CARBON 2.2K 5%	1/4W	R819	1-249-377-11	CARBON 0.47 5%	1/4W F
R264	1-212-857-00	FUSIBLE 10 5%	1/4W F	R820	1-214-907-00	METAL 56K 1%	1/2W
R265	1-249-389-11	CARBON 4.7 5%	1/4W F	R821	1-249-427-11	CARBON 6.8K 5%	1/4W
R266	1-249-389-11	CARBON 4.7 5%	1/4W F	R823	1-249-420-11	CARBON 1.8K 5%	1/4W
R267	1-247-815-91	CARBON 220 5%	1/4W	R835	1-249-432-11	CARBON 18K 5%	1/4W
R268	1-247-815-91	CARBON 220 5%	1/4W	R837	1-249-422-11	CARBON 2.7K 5%	1/4W
R269	1-249-415-11	CARBON 680 5%	1/4W	R842	1-249-399-11	CARBON 33 5%	1/4W F
R270	1-249-415-11	CARBON 680 5%	1/4W	R843	1-202-822-00	SOLID 2.2K 20%	1/2W
R271	1-247-742-11	CARBON 180 5%	1/2W F	R844	1-249-424-11	CARBON 3.9K 5%	1/4W
R277	1-249-419-11	CARBON 1.5K 5%	1/4W	R845	1-247-881-00	CARBON 120K 5%	1/4W
R278	1-249-441-11	CARBON 100K 5%	1/4W	R846	1-249-422-11	CARBON 2.7K 5%	1/4W
R279	1-249-429-11	CARBON 10K 5%	1/4W	R847	1-249-437-11	CARBON 47K 5%	1/4W
R280	1-249-425-11	CARBON 4.7K 5%	1/4W	R848	1-249-425-11	CARBON 4.7K 5%	1/4W
R281	1-249-437-11	CARBON 47K 5%	1/4W	R849	1-249-429-11	CARBON 10K 5%	1/4W
R282	1-249-430-11	CARBON 12K 5%	1/4W	R850	1-249-389-11	CARBON 4.7 5%	1/4W F
R283	1-249-429-11	CARBON 10K 5%	1/4W	R851	1-216-399-00	METAL OXIDE 6.8 5%	3W F
R284	1-249-432-11	CARBON 18K 5%	1/4W	R854	1-249-436-11	CARBON 39K 5%	1/4W

D

VM

The components identified by shading and marked **A** are critical for safety.
Replace only with the part number specified.

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R855	1-249-417-11	CARBON	1K 5% 1/4W	*A-1644-075-A	VM BOARD, COMPLETE		
R857	1-202-822-00	SOLID	2.2K 20% 1/2W	*****			
R859	1-249-432-11	CARBON	18K 5% 1/4W	4-382-854-11	SCREW (M3X10), P, SW (+)		
R860	1-247-843-11	CARBON	3.3K 5% 1/4W				
R861	1-249-417-11	CARBON	1K 5% 1/4W				
				< CAPACITOR >			
R862	1-249-383-11	CARBON	1.5 5% 1/4W F	C1701	1-124-119-00	ELECT 330MF 20% 16V	
R863	1-216-475-11	METAL OXIDE	120 5% 3W F	C1704	1-161-830-00	CERAMIC 0.0047MF 500V	
R865	1-249-436-11	CARBON	39K 5% 1/4W	C1706	1-107-638-11	ELECT 33MF 20% 160V	
R866	1-249-432-11	CARBON	18K 5% 1/4W	C1707	1-124-907-11	ELECT 10MF 20% 50V	
R867	1-216-390-11	METAL OXIDE	1.2 5% 3W F	C1708	1-163-075-00	CERAMIC CHIP 0.047MF 50V	
R868	1-249-418-11	CARBON	1.2K 5% 1/4W	C1709	1-129-702-00	FILM 0.001MF 10% 630V	
R895	1-215-866-11	METAL OXIDE	330 5% 1W F	C1710	1-136-203-11	FILM 0.01MF 10% 250V	
R900	1-247-815-91	CARBON	220 5% 1/4W	C1711	1-162-318-11	CERAMIC 0.001MF 10% 500V	
R901	1-249-417-11	CARBON	1K 5% 1/4W	C1712	1-107-667-11	ELECT 2.2MF 20% 160V	
R902	1-249-417-11	CARBON	1K 5% 1/4W	C1713	1-162-318-11	CERAMIC 0.001MF 10% 500V	
R908	1-249-401-11	CARBON	47 5% 1/4W	C1714	1-136-203-11	FILM 0.01MF 10% 250V	
R909	1-249-437-11	CARBON	47K 5% 1/4W	C1715	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
R910	1-249-437-11	CARBON	47K 5% 1/4W	C1716	1-124-907-11	ELECT 10MF 20% 50V	
R911	1-249-425-11	CARBON	4.7K 5% 1/4W	C1718	1-124-120-11	ELECT 220MF 20% 16V	
R912	1-249-421-11	CARBON	2.2K 5% 1/4W	C1719	1-124-907-11	ELECT 10MF 20% 50V	
R913	1-249-425-11	CARBON	4.7K 5% 1/4W	C1722	1-101-810-00	CERAMIC 100PF 5% 500V	
R914	1-249-421-11	CARBON	2.2K 5% 1/4W	C1723	1-104-396-11	ELECT 10MF 20% 16V	
R922	1-249-406-11	CARBON	120 5% 1/4W	C1724	1-101-810-00	CERAMIC 100PF 5% 500V	
R923	1-249-406-11	CARBON	120 5% 1/4W				
R925	1-249-429-11	CARBON	10K 5% 1/4W	< CONNECTOR >			
				CN1701	1-774-418-11	CONNECTOR, BOARD TO BOARD 8P	
R926	1-249-429-11	CARBON	10K 5% 1/4W	CN1830	*1-564-510-11	PLUG, CONNECTOR 7P	
R1641	1-247-863-91	CARBON	22K 5% 1/4W				
R1645	1-249-439-11	CARBON	68K 5% 1/4W	< DIODE >			
R1646	1-249-421-11	CARBON	2.2K 5% 1/4W	D1701	8-719-914-43	DIODE DAN202K	
R1648	1-215-875-11	METAL OXIDE	10K 5% 1W F	D1702	8-719-914-42	DIODE DA204K	
				D1704	8-719-982-37	DIODE MTZJ-39C	
R1649	1-249-429-11	CARBON	10K 5% 1/4W	D1705	8-719-982-37	DIODE MTZJ-39C	
R1650	1-249-429-11	CARBON	10K 5% 1/4W	D1706	8-719-914-42	DIODE DA204K	
R1651	1-249-399-11	CARBON	33 5% 1/4W F				
R1652	1-249-421-11	CARBON	2.2K 5% 1/4W	D1708	8-719-914-42	DIODE DA204K	
R2701	1-247-863-91	CARBON	22K 5% 1/4W	D1709	8-719-914-42	DIODE DA204K	
R2702	1-247-863-91	CARBON	22K 5% 1/4W	< COIL >			
R2703	1-247-863-91	CARBON	22K 5% 1/4W	L1702	1-408-410-00	INDUCTOR 12UH	
R2704	1-247-863-91	CARBON	22K 5% 1/4W				
R2705	1-249-429-11	CARBON	10K 5% 1/4W	< TRANSISTOR >			
R2706	1-249-429-11	CARBON	10K 5% 1/4W	Q1701	8-729-901-59	TRANSISTOR BF199	
				Q1702	8-729-216-22	TRANSISTOR 2SA1162-G	
R2708	1-249-429-11	CARBON	10K 5% 1/4W	Q1703	8-729-017-05	TRANSISTOR 2SA1837	
R2719	1-212-857-00	FUSIBLE	10 5% 1/4W F	Q1704	8-729-920-74	TRANSISTOR 2SC2412K-QR	
				Q1705	8-729-017-06	TRANSISTOR 2SC4793	
< SWITCH >				Q1706	8-729-920-74	TRANSISTOR 2SC2412K-QR	
S900	1-571-433-21	SWITCH, PUSH (AC POWER)		Q1707	8-729-920-74	TRANSISTOR 2SC2412K-QR	
S901	1-692-979-11	SWITCH, TACTILE		Q1708	8-729-901-59	TRANSISTOR BF199	
S902	1-692-979-11	SWITCH, TACTILE					
				Q1710	8-729-216-22	TRANSISTOR 2SA1162-G	
< TRANSFORMER >				Q1711	8-729-039-27	TRANSISTOR BC546B	
T801	1-427-762-11	TRANSFORMER, FERRITE (HDT)		Q1712	8-729-039-25	TRANSISTOR BC556B	
T803	1-426-897-11	TRANSFORMER, FERRITE (PMT)					
T804	1-429-288-11	HLT		< RESISTOR >			
T806	1-413-059-00	TRANSFORMER, FERRITE (DFT)		JR1701	1-216-296-91	METAL GLAZE 0 5% 1/10W	
				JR1702	1-216-296-91	METAL GLAZE 0 5% 1/10W	
				R1701	1-216-025-91	METAL GLAZE 100 5% 1/10W	
				R1702	1-249-413-11	CARBON 470 5% 1/4W	



REF.NO.	PART NO.	DESCRIPTION	REMARK
R1703	1-216-025-91	METAL GLAZE 100 5%	1/10W
R1704	1-249-418-11	CARBON 1.2K 5%	1/4W
R1705	1-247-736-11	CARBON 56 5%	1/2W F
R1706	1-249-414-11	CARBON 560 5%	1/4W F
R1707	1-249-411-11	CARBON 330 5%	1/4W
R1709	1-249-412-11	CARBON 390 5%	1/4W
R1711	1-249-432-11	CARBON 18K 5%	1/4W
R1712	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R1713	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R1714	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R1715	1-215-866-11	METAL OXIDE 330 5%	1W F
R1716	1-249-417-11	CARBON 1K 5%	1/4W F
R1717	1-249-432-11	CARBON 18K 5%	1/4W
R1718	1-249-412-11	CARBON 390 5%	1/4W
R1719	1-249-416-11	CARBON 820 5%	1/4W
R1720	1-216-089-91	METAL GLAZE 47K 5%	1/10W
R1721	1-249-414-11	CARBON 560 5%	1/4W
R1723	1-249-429-11	CARBON 10K 5%	1/4W
R1724	1-216-689-11	METAL GLAZE 39K 5%	1/10W
R1725	1-249-413-11	CARBON 470 5%	1/4W
R1726	1-216-035-00	METAL GLAZE 270 5%	1/10W
R1727	1-249-402-11	CARBON 56 5%	1/4W F
R1730	1-216-121-91	METAL GLAZE 1M 5%	1/10W
R1731	1-216-049-91	METAL GLAZE 1K 5%	1/10W
R1736	1-247-807-31	CARBON 100 5%	1/4W
R1737	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R1738	1-216-174-00	METAL GLAZE 100 5%	1/8W
R1739	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R1740	1-216-174-00	METAL GLAZE 100 5%	1/8W
R1741	1-216-166-00	METAL GLAZE 47 5%	1/8W
R1743	1-216-021-00	METAL GLAZE 68 5%	1/10W
R1744	1-249-393-11	CARBON 10 5%	1/4W
R1745	1-249-393-11	CARBON 10 5%	1/4W

*A-1649-015-A K BOARD, COMPLETE

< CAPACITOR >

C1252	1-126-967-11	ELECT 47MF	20% 16V
C1253	1-126-967-11	ELECT 47MF	20% 16V
C1254	1-136-165-00	FILM 0.1MF	5% 50V
C1255	1-136-165-00	FILM 0.1MF	5% 50V
C1256	1-126-953-11	ELECT 2200MF	20% 35V
C1257	1-136-165-00	FILM 0.1MF	5% 50V
C1258	1-126-953-11	ELECT 2200MF	20% 35V
C1259	1-136-165-00	FILM 0.1MF	5% 50V

< CONNECTOR >

CN0271	*1-564-508-11	PLUG, CONNECTOR 5P
CN0272	*1-564-509-11	PLUG, CONNECTOR 6P
CN0273	*1-564-508-11	PLUG, CONNECTOR 5P

< DIODE >

D1250	8-719-991-33	DIODE 1SS133T-77
D1251	8-719-991-33	DIODE 1SS133T-77
D1252	8-719-991-33	DIODE 1SS133T-77
D1253	8-719-991-33	DIODE 1SS133T-77

REF.NO.	PART NO.	DESCRIPTION	REMARK
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< IC >

IC1250	8-759-190-89	IC TDA7265
	4-202-373-01	SPRING, IC ; IC1250
	4-202-710-01	SPACER, INSULATING ; IC1250

< RESISTOR >

R1250	1-249-424-11	CARBON 3.9K 5%	1/4W
R1251	1-249-424-11	CARBON 3.9K 5%	1/4W
R1253	1-249-417-11	CARBON 1K 5%	1/4W
R1256	1-249-417-11	CARBON 1K 5%	1/4W
R1258	1-249-413-11	CARBON 470 5%	1/4W
R1259	1-249-430-11	CARBON 12K 5%	1/4W
R1260	1-249-430-11	CARBON 12K 5%	1/4W
R1261	1-249-413-11	CARBON 470 5%	1/4W
R1262	1-249-425-11	CARBON 4.7K 5%	1/4W
R1263	1-216-357-00	METAL OXIDE 4.7 5%	1W F
R1264	1-216-357-00	METAL OXIDE 4.7 5%	1W F
R1265	1-249-426-11	CARBON 5.6K 5%	1/4W
R1266	1-249-426-11	CARBON 5.6K 5%	1/4W
R1267	1-249-429-11	CARBON 10K 5%	1/4W
R1268	1-249-429-11	CARBON 10K 5%	1/4W

*A-1651-083-A J1 BOARD, COMPLETE (KV-28WS4A/28WS4D/
***** 28WS4E/28WS4K/
28WS4R)

*A-1651-089-A J1 BOARD, COMPLETE (KV-28WS4B)

< CAPACITOR >

C551	1-101-005-00	CERAMIC 0.022MF	50V
C554	1-101-005-00	CERAMIC 0.022MF	50V
C560	1-101-005-00	CERAMIC 0.022MF	50V
C563	1-101-005-00	CERAMIC 0.022MF	50V
C567	1-102-119-00	CERAMIC 0.0015MF	10% 50V
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
C568	1-102-119-00	CERAMIC 0.0015MF	10% 50V
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	

< CONNECTOR >

CN550	*1-564-519-11	PLUG, CONNECTOR 4P
CN551	*1-564-519-11	PLUG, CONNECTOR 4P
CN552	1-564-524-11	PLUG, CONNECTOR 9P
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
	*1-564-521-11	PLUG, CONNECTOR 6P (KV-28WS4B)
CN553	*1-564-520-11	PLUG, CONNECTOR 5P
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
CN572	*1-564-521-11	PLUG, CONNECTOR 6P

< DIODE >

D550	8-719-923-60	DIODE MTZJ-T-77-9.1A
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
D551	8-719-923-60	DIODE MTZJ-T-77-9.1A
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
D552	8-719-923-60	DIODE MTZJ-T-77-9.1A
		(KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)

< SOCKET >

J550	1-537-339-11	TERMINAL BOARD
J551	1-537-978-11	TERMINAL BOARD


J1

T

REF.NO.	PART NO.	DESCRIPTION	REMARK
J552	1-695-817-11	JACK BLOCK, PIN 3P (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
J553	1-569-578-11	TERMINAL, S (WITH SW) (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
< COIL >			
L550	1-402-711-11	INDUCTOR, WIDE BAND	
L552	1-402-711-11	INDUCTOR, WIDE BAND	
L554	1-402-711-11	INDUCTOR, WIDE BAND	
L556	1-402-711-11	INDUCTOR, WIDE BAND	
< RESISTOR >			
R551	1-249-426-11	CARBON 5.6K 5% 1/4W	
R552	1-249-426-11	CARBON 5.6K 5% 1/4W	
R553	1-249-393-11	CARBON 10 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R554	1-249-394-11	CARBON 12 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R555	1-249-394-11	CARBON 12 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R556	1-247-895-91	CARBON 470K 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R557	1-247-895-91	CARBON 470K 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R558	1-249-412-11	CARBON 390 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R559	1-249-412-11	CARBON 390 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R560	1-249-412-11	CARBON 390 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	
R561	1-249-412-11	CARBON 390 5% 1/4W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)	

*A-1652-042-A	T BOARD, COMPLETE (KV-28WS4A/28WS4D/ ***** 28WS4E/28WS4K/ 28WS4R)		
*A-1652-044-A	T BOARD, COMPLETE (KV-28WS4B) *****		
< CAPACITOR >			
C5002	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C5003	1-124-120-11	ELECT 220MF	20% 16V
C5004	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (KV-28WS4B)
C5005	1-163-251-11	CERAMIC CHIP 100PF	5% 50V (KV-28WS4B)
C5006	1-163-113-00	CERAMIC CHIP 68PF	5% 50V (KV-28WS4B)
C5007	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V
C5008	1-163-037-11	CERAMIC CHIP 0.022MF	10% 50V
C5009	1-126-965-11	ELECT 22MF	20% 50V
C5010	1-124-907-11	ELECT 10MF	20% 50V
C5011	1-126-961-11	ELECT 2.2MF	20% 50V
C5012	1-109-953-11	ELECT 2.2MF	20% 50V (KV-28WS4B)
C5013	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V
C5014	1-109-953-11	ELECT 2.2MF	20% 50V
C5015	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C5016	1-124-120-11	ELECT 220MF	20% 16V
C5018	1-163-237-11	CERAMIC CHIP 27PF	5% 50V

REF.NO.	PART NO.	DESCRIPTION	REMARK
C5019	1-104-664-11	ELECT 47MF	20% 25V (KV-28WS4B)
< FILTER >			
CF5001	1-760-106-11	FILTER, CERAMIC	
CF5002	1-567-100-00	FILTER, CERAMIC	(KV-28WS4B)
CF5003	1-760-450-21	FILTER, CERAMIC	
< CONNECTOR >			
CN5001	*1-564-508-11	PLUG, CONNECTOR 5P	
CN5002	*1-564-509-11	PLUG, CONNECTOR 6P	
< DIODE >			
D5002	8-719-421-57	DIODE MA73-TX	
D5003	8-719-421-57	DIODE MA73-TX	(KV-28WS4B)
D5004	8-719-421-57	DIODE MA73-TX	
< IC >			
IC5001	8-759-398-24	IC U2860B-BFPG3	
IC5002	8-752-072-94	IC CXA1875AM-T4	
< COIL >			
L5001	1-408-406-00	INDUCTOR	5.6UH
L5002	1-408-406-00	INDUCTOR	5.6UH
L5003	1-412-751-11	INDUCTOR	18UH (KV-28WS4B)
< TRANSISTOR >			
Q5001	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS4B)
Q5002	8-729-039-67	TRANSISTOR BSS83	(KV-28WS4B)
Q5004	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q5005	8-729-901-01	TRANSISTOR DTC144EK-T146	(KV-28WS4B)
Q5006	8-729-901-01	TRANSISTOR DTC144EK-T146	(KV-28WS4B)
Q5007	8-729-920-74	TRANSISTOR 2SC2412K-QR	(KV-28WS4B)
Q5008	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q5009	8-729-901-01	TRANSISTOR DTC144EK-T146	
Q5010	8-729-901-01	TRANSISTOR DTC144EK-T146	(KV-28WS4B)
Q5011	8-729-901-01	TRANSISTOR DTC144EK-T146	
Q5012	8-729-901-01	TRANSISTOR DTC144EK-T146	(KV-28WS4B)
Q5014	8-729-038-96	TRANSISTOR IMZ1A-T109	
Q5015	8-729-216-22	TRANSISTOR 2SA1162-G	(KV-28WS4B)
Q5016	8-729-920-74	TRANSISTOR 2SC2412K-QR	
Q5017	8-729-216-22	TRANSISTOR 2SA1162-G	
< RESISTOR >			
R5001	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R5002	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R5004	1-216-025-91	METAL GLAZE 100 5%	1/10W
R5005	1-216-025-91	METAL GLAZE 100 5%	1/10W
R5007	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R5008	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R5009	1-208-774-11	METAL CHIP 470 0.50%	1/10W (KV-28WS4B)
R5010	1-208-774-11	METAL CHIP 470 0.50%	1/10W (KV-28WS4B)
R5011	1-208-774-11	METAL CHIP 470 0.50%	1/10W (KV-28WS4B)
R5012	1-216-073-00	METAL GLAZE 10K 5%	1/10W (KV-28WS4B)
R5015	1-216-295-91	METAL GLAZE 0 5%	1/10W (KV-28WS4A/28WS4D/28WS4E/28WS4K/28WS4R)
R5016	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W

Les composants identifiés par une trame et une marque  sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.



Sony Deutschland GmbH

Hugo-Eckener-Straße 20, D-50829 Köln-Ossendorf, Postfach 3012 49, 50782 Köln
Telefon (02 21) 5966-0, Telefax (02 21) 59 66-349, ISDN Videokonferenz (02 21) 9 56 10 10/03/06

Sehr geehrte Kundin, sehr geehrter Kunde,

zusammen mit dem bestellten Service Manual erhalten Sie eine Einstellanleitung für das entsprechende Chassis-Modell.

Diese wurde von unseren "Spezialisten" erstellt und beinhaltet die korrekten Einstellparameter der folgenden Gerätetypen:

KV-25C3D

KV-29C3D

KV-28WS4D

KV-32WS4D

KV-28WX2D

KV-32WX2D

Nach Austausch des Speicherbausteins **IC1003** (A-BOARD) oder einem Reset ist es erforderlich, das Gerät neu abzugleichen.

Alle erforderlichen Schritte sind in dieser Broschüre aufgelistet.

Wir hoffen, Ihnen die Reparatur- und Einstellzeit an diesem komplexen Chassis mit Hilfe der Unterlage zu verkürzen und verbleiben,

Mit freundlichen Grüßen
Ihr Sony Service Team

NVM ADJUSTMENT STANDARD AE-4 CHASSIS

KV-25C3D
KV-25C3E
KV-25C3A
KV-25C3B

KV-29C3D
KV-29C3E
KV-29C3A
KV-29C3K
KV-29C3R
KV-29C3B

KV-28WX2D
KV-28WX2E
KV-28WX2A
KV-28WX2B

KV-32WX2D
KV-32WX2E
KV-32WX2A
KV-32WX2B
KV-32WX2U

KV-28WS4A
KV-28WS4E
KV-28WS4B
KV-28WS4D
KV-28WS4K
KV-28WS4R

KV-32WS4U
KV-32WS4A
KV-32WS4E
KV-32WS4F
KV-32WS4D
KV-32WS4K
KV-32WS4R

Impressum

Impressum

Herausgeber
Sony, Technical Training

Änderungen vorbehalten. Für Druck- und Informationsfehler übernehmen wir keine Haftung.

Stand: 09/04/97

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Single PIP	SDA 9288	Seite 37 - 39
Sound		Seite 40 - 45
Line23 det		Seite 46 - 48

Vorwort

In erster Linie beinhaltet diese Einstellhilfe die korrekten Einstellparameter aller auf der Titelseite aufgeführten Gerätetypen. Um einheitliche Ergebnisse gewährleisten zu können, muß die Überprüfung bzw. Korrektur der Einstellwerte im Wide Mode erfolgen. **Die Einstellhilfe hat Gültigkeit für die auf Seite 6 aufgeführten Software-Versionen.**

Darüber hinaus wurden in dieser Unterlage die im ROM abgelegten Grunddaten für die Software-Version V8.40E hinzugefügt. Ein neues EEPROM wird nach dem Einschalten automatisch mit diesen Daten geräteintern vorprogrammiert. Im Vergleich dazu stehen dann noch die Grunddaten, die durch den Befehl TT49 (nur Produktion) auftreten können sowie eine dritte Kategorie von Grunddaten, die ausgelöst durch spezielle TT-Befehle (siehe TT76, 77, 78, 81, 82, 84, 85, 86, 87) nur Daten eines vorbestimmten Schaltkreises überschreiben.

Nach Auswertung aller zu Verfügung stehenden Daten, können Abweichungen zum Originalabgleich erkannt und durch graue Felder bzw. durch ein K (Korrektur) gekennzeichnet werden. Nur diese Einträge bedürfen nach einem EEPROM-Austausch noch einer Aktualisierung, womit sich der Zeitaufwand im Servicefall durch weniger zu kontrollierende Einträge minimieren läßt.

Da sich Geräte mit anderslautenden Software-Versionen von der Abgleichprozedur zur Version V8.40E geringfügig unterscheiden könnten, sollten Sie nach einem EEPROM-Austausch alle Einstellungen Punkt für Punkt mit der Einstellhilfe vergleichen.

AE40X V8. 40E AE-4 28/11/96

Init TV

Pip, Lumisponder & AutoWide

Sub Adjust

Video Proc TDA 4780

Col Dec Main TDA 9144

Deflect. Cont SDA 9361

Col Dec Sub TDA 9143

Feature Box S87C654

AI TDA 9170

DA SDA 9280

Single PIP SDA 9288

Sound

Line23 det

Software_Übersicht AE-4

Official	Version	Datum	Modelle	Chassis
AE401		20.09.1996	WX, C3 only	AE4
AE401A		24.09.1996		
AE401B		25.09.1996		
AE401C		26.09.1996		
AE401D		27.09.1996		
AE401E		02.10.1996		
AE401F		09.10.1996		
AE401G		10.10.1996		
AE401H		11.10.1996		
AE401K		16.10.1996		
AE401L		23.10.1996		
AE401M		24.10.1996		
AE401N		01.11.1996		
AE402	V8.39i	08.11.1996	WS only	
AE402B		14.11.1996		
AE40X	V8.40B	20.11.1996	WX, WS, C3	
AE40X	V8.40C	25.11.1996		
AE40X	V8.40D	26.11.1996		
AE40X	V8.40E	28.11.1996		
AE40X	V8.40F	28.11.1996		
AE40X	V8.40G	11.12.1996		
AE40X	V8.40H	11.12.1996		
AE40X	V8.40I	16.12.1996		
AE403	V8.40K	19.12.1996		

INIT TV _ Initialization

Nr.	Funktion	Initialization / INIT BYTE							siehe Text
		EEPROM (neu)	nach Eingabe von TT49	Destination (Land)/Serienkonfiguration				OTHER	
				B	U	E (16:9 only)			
01	B / G	on	on	on	off	on		on	K
02	I	on	on	on	on	on		off	K
03	D / K	off	off	on	off	on		on	K
04	AUS	off	off	off	off	off		off	
05	L	on	on	on	off	on		off	K
06	SAT	off	off	off	off	off		off	
07	M	off	off	off	off	off		off	

z.B. KV-...D

K = Korrektur

Nach einem **EEPROM-Austausch** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Schalter nach Serienkonfiguration erfolgen. Siehe auch Seite 13-15 (**TT13 / Test Mode 2 _Display of Software Version and TV set configuration**).

Die SAT-Funktion kann nicht aktiviert werden, sie wird durch die Software sofort wieder in den Aus-Zustand (off) zurückgeschaltet.

Kennzeichnet nicht die Empfangsnorm, sondern dient als Länderschlüssel.

MODEL	Destination	Code	Empfangsnorm
KV-32WS4A	Italian		
KV-32WS4D	AEP		z.B. B/G (CCIR / (VHF & UHF), D/K (Osnorm / OIRT)
KV-32WS4E	Spanish	OTHER	
KV-32WS4K	OIRT		
KV-32WS4R	OIRT		
KV-32WS4B/FR	French	B/FR	
KV-32WS4U	UK (England)	U	

Siehe auch Service Manual (Titelseite)

INIT TV _ Initialization

Nr.	Funktion	Initialization / MODEL INIT							siehe Text
		EEPROM (neu)	nach Eingabe von TT49	Model / Gerätetyp (Serienkonfiguration)					
				C25/C29	28/WX2	32WX2	28WS4	32WS4	
01	SCART 1	on	on	on	on	on	on	on	
02	SCART 2	on	on	on	on	on	on	on	
03	FRONT IN 3	on	on	on	on	on	on	on	
04	SCART 4	off	off	off	off	off	off	off	
05	VGA	off	off	off	off	off	off	off	
06	WIDE SCREEN	on	on	off	on	on	on	on	K
07	W32 MODEL	off	off	off	off	on	off	on	K
08	PICTURE ROTATION	on	on	on	on	on	on	on	
09	AUTO WIDE	off	off	off	on	on	on	on	K
10	AUTO WIDE DEF. SMART	off	off	off	on	on	on	on	K
11	RUSSIAN SOUND CARRIER	off	off	off	off	off	off	off	

K = Korrektur

Nach einem **EEPROM-Austausch** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Schalter wie vorgegeben (Serienkonfiguration) erfolgen. Siehe auch Seite 13-15 (**TT13 / Test Mode 2 _Display of Software Version and TV set configuration**).

INIT TV _ Initialization

Nr.	Funktion	Initialization / FEATURES							siehe Text
		EEPROM (neu)	nach Eingabe von TT49	Model / Gerätetyp (Serienkonfiguration)					
				C25/C29	28/32WX	28/32WS			
01	PAL COMB	on	on	off	off	on			K
02	RGB PRIORITY	off	off	off	off	off			
03	60 PRGS	off	off	off	off	off			
04	LINE23 DET	off	off	off	on	on			K
05	LUMISPONDER	off	off	on	off	off			K
06	AI	on	on	off	on	on			K
07	SRS - DOLBY	off	off	off	off	off			
08	DOLBY PROLOGIC	off	off	off	off	on			K
09	SOUND EFFECTS	off	off	off	off	off			
10	EQUALIZER	off	off	off	off	on			K
11	SUB TUNER	on	on	off	off	on			K
12	PIP	off	off	on	off	off			K
13	PAP	on	on	off	off	on			K
14	MULTI PIP	off	off	off	on	on			K
15	PAT	off	off	off	on	on			K

K = Korrektur

Nach einem **EEPROM-Austausch** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Schalter wie vorgegeben (Serienkonfiguration) erfolgen. Siehe auch Seite 13-15 (**TT13 / Test Mode 2 _Display of Software Version and TV set configuration**).

INIT TV _ Initialization

Nr.	Funktion	Initialization / LANGUAGES							siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	Destination (Land)/Serienkonfiguration				
						R	K	A/B/D/E/U	
01	Nat. Opt. Char	0	0	3		4	1	3	K
02	Menü Language	West	West	West		East	East	West	K

z.B.
KV-32WS4D

Beispiel:

K = Korrektur

Nach einem **EEPROM-Austausch** muß zum Beispiel bei dem Gerätetyp KV-32WS4D eine Aktualisierung der grau gekennzeichneten Funktion **01** erfolgen. Den hierfür benötigten Zahlenwert können Sie der oben aufgeführten Tabelle (siehe Serienkonfiguration) entnehmen. Siehe auch Seite 13-15 (TT13 / **Test Mode 2** _Display of Software Version and TV set configuration).

Eine weitere Korrektur wird erforderlich, wenn die Gerätetypen mit den Buchstaben R und K enden. Beispiel KV-...K. Bei diesen Geräten ist dann zusätzlich noch die Funktion 02 (Menü Language) von West auf East umzuschalten.

Der Befehl TT49 nimmt in diesem Menü eine Sonderstellung ein. Nach Eingabe von TT49 würden sich die Einstellwerte eines Seriengerätes nicht verändern. Einstellwerte die sich nach einem EEPROM-Austausch einstellen, werden durch Eingabe von TT49 ebenfalls nicht verändert.

Der Eintrag [3] bewirkt, daß in der Übersicht (TT13/Test Mode 2) im ersten Block/Zeile 4 der Eintrag **TXT CHAR. 55** geschrieben wird. **Character Set 55 = West Europe/Turkish (D-Version).**

Die Umschaltung (Nat. Opt. Char = 3) kann parallel auch mit TT29 / **Test Mode 2** erfolgen.

Menü Language **ALL---East---West**

Die **ALL-Einstellung** im Menü Language (Sprachenmenü) darf für Anwender nicht freigeschaltet werden. Sie ist nur der Fertigung für Testzwecke vorbehalten.

TV set configuration (TT13)

Die produktionsseitig programmierten Initialisierungsdaten sowie die aktuelle Softwareversion können jetzt durch Eingabe des Befehls TT13 (Test Mode 2) auf dem Bildschirm dargestellt werden. Diese Auflistung gibt zusammengefaßt alle wichtigen Voreinstellungen wieder, die im Service-Menü unter dem Menüpunkt Init TV eingestellt wurden.

Eine Aktualisierung dieser Daten kann im Fehlerfall (z.B. NVM-Datenverlust) **nur** im Service-Menü (Init TV) durchgeführt werden.

Einstellhilfen mit den gerätespezifischen Initialisierungsdaten geben hier Hilfestellung und ermöglichen einen korrekten Abgleich. (Siehe auch Seite 7-10 oder 13-15).

Durch TT-Befehle (Test Mode 2) hervorgerufene Einträge sind nachfolgend noch einmal gesondert gekennzeichnet.

Funktion	Wo wird eingestellt?
PRGS. []	siehe Initialization/FEATURES
Level 2.5 []	siehe Test Mode 2 (TT18)
RAM SPC []	kein Zugriff (nur Produktion)
TXT CHAR. []	siehe Initialization/LANGUAGES oder Test Mode 2 (TT27, TT29 und TT89)
PCF []	siehe Initialization/FEATURES

TV_set_configuration_OTHER

SUB TUNER	[	]	siehe Initialization/FEATURES
PIP	[	]	siehe Initialization/FEATURES
PAP	[	]	siehe Initialization/FEATURES
RGB PRY	[	]	siehe Initialization/FEATURES
EQUALIZER	[	]	siehe Initialization/FEATURES
DSP	[	]	kein Zugriff (nur Produktion)
DOLBY	[	]	siehe Initialization/FEATURES
Rotation	[	]	siehe Initialization/MODEL INIT oder Test Mode 2 (TT71)
WIDE SCREE	[	]	siehe Initialization/MODEL INIT
SCART 1	[	]	siehe Initialization/MODEL INIT
SCART 2	[	]	siehe Initialization/MODEL INIT
FRONT IN	[	]	siehe Initialization/MODEL INIT
SCART 4	[	]	siehe Initialization/MODEL INIT
SYS B/G	[	]	siehe Initialization/INIT BYTE
SYS I	[	]	siehe Initialization/INIT BYTE
SYS L	[	]	siehe Initialization/INIT BYTE
SYS D/K	[	]	siehe Initialization/INIT BYTE
SYS M	[	]	siehe Initialization/INIT BYTE
SYS AUS	[	]	siehe Initialization/INIT BYTE
SYS SAT	[	]	siehe Initialization/INIT BYTE
PHIL BUG	[	]	siehe Test Mode 2 (TT37/TT13)

TV set configuration TT13/ Initialisierungsvorgaben zu KV-28/32WS4D

AE40X	V8.40E	AE-4	28/11/96
PRGS.	[100]	WIDE SCREE	[yes]
Level 2.5	[yes]	SCART 1	[yes]
RAM SPC	[no]	SCART 2	[yes]
TXT CHAR.	[55]	FRONT IN	[yes]
PCF	[yes]	SCART 4	[no]
SUB TUNER	[yes]	SYS B/G	[yes]
PIP	[no]	SYS I	[no]
PAP	[yes]	SYS L	[no]
RGB PRTY	[no]	SYS D/K	[yes]
EQUALIZER	[yes]	SYS M	[no]
DSP	[no]	SYS AUS	[no]
DOLBY	[yes]	SYS SAT	[no]
Rotation	[yes]	PHIL BUG	[yes]

TV set configuration TT13/ Initialisierungsvorgaben zu KV-28/32WX2D

AE401K		V8.38L	AE-4	16/10/96
PRGS.	[100]	WIDE SCREE	[yes]	
Level 2.5	[no]	SCART 1	[yes]	
RAM SPC	[no]	SCART 2	[yes]	
TXT CHAR.	[55]	FRONT IN	[yes]	
PCF	[no]	SCART 4	[no]	
SUB TUNER	[no]	SYS B/G	[yes]	
PIP	[no]	SYS I	[no]	
PAP	[no]	SYS L	[no]	
RGB PRTY	[no]	SYS D/K	[yes]	
EQUALIZER	[no]	SYS M	[no]	
DSP	[no]	SYS AUS	[no]	
DOLBY	[no]	SYS SAT	[no]	
Rotation	[yes]	PHIL BUG	[yes]	

TV set configuration TT13/ Initialisierungsvorgaben zu KV-25/29C3D

AE40X	V8.40F	AE-4	05/12/96
PRGS.	[100]	WIDE SCREE	[no]
Level 2.5	[no]	SCART 1	[yes]
RAM SPC	[no]	SCART 2	[yes]
TXT CHAR.	[55]	FRONT IN	[yes]
PCF	[no]	SCART 4	[no]
SUB TUNER	[no]	SYS B/G	[yes]
PIP	[yes]	SYS I	[no]
PAP	[no]	SYS L	[no]
RGB PRTY	[no]	SYS D/K	[yes]
EQUALIZER	[no]	SYS M	[no]
DSP	[no]	SYS AUS	[no]
DOLBY	[no]	SYS SAT	[no]
Rotation	[yes]	PHIL BUG	[yes]

Nr.	Funktion	PIP, LUMISPONDER & AUTOWIDE							siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	Serienkonfiguration				
					All	C-Serie	WX-Serie	WS-Serie	
01	PIP CONTRAST	+4	+4	0	0	X			K
02	PIP LEFT	+20	+20	-20	-20	X			K
03	PIP RIGHT	+20	+20	-20	-20	X			K
04	PIP UP	+20	+20	0	0	X			K
05	PIP DOWN	+20	+20	0	0	X			K
06	LUMISPONDER CURVE	2	2	1	1	X			K
07	AUTOWIDE LOGO	on	on	on	on		X	X	
08	AUTOWIDE SUBTITLE	on	on	on	on		X	X	
09	AUTOWIDE ZOOM SHIFT	15	15	7	7		X	X	K

K = Korrektur

Nach einem **EEPROM-Austausch** müssen die grau gekennzeichneten Felder mit den Werten der Serienkonfiguration aktualisiert werden.

Der Befehl TT49 nimmt bei diesem Menü eine Sonderstellung ein. Nach Eingabe von TT49 würden sich die Einstellwerte eines Seriengerätes nicht verändern. Einstellwerte die sich nach einem EEPROM-Austausch einstellen, werden durch Eingabe von TT49 ebenfalls nicht verändert.

Sub Adjust

Nr.	Funktion	Sub Adjustment							siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	Serienkonfiguration				
					All	4:3	16:9 FR	16:9 others	
01	Sub Picture	0	0	0		-5	-2	-2	K
02	Sub Color	0	0	0		Adj.	-2	-2	K
03	Sub Brightness	0	0	0		-10	-10	-7	K
04	4 / 3 Center	0	0	0	0				
05	PAP H Center	0	0	0	+14				K
06	PAP HWE Offset	0	0	0	-5				K
07	Menue / Text H - Pos	-1	-1	-2	-2				K
08	PAT RGB Offset	7	7	6		0	Adj.	Adj.	K
09	PAT RGB Gain	31	31	30		0	Adj.	Adj.	K
10	Extra Framing Window	255	255	255	255				

K = Korrektur

Nach einem EEPROM-Austausch müssen die grau gekennzeichneten Felder mit den Werten der Serienkonfiguration aktualisiert werden. (Funktion **01-03, 05-09**).

Der Befehl TT49 nimmt bei diesem Menü eine Sonderstellung ein. Bei einem Seriengerät verändern sich nach Eingabe von TT49 die Einstellwerte der Funktionen 01-03 und 05-09. Einstellwerte die sich nach einem EEPROM-Austausch einstellen, werden durch Eingabe von TT49 nicht verändert.

Zu Funktion 01-03:

Die Funktionen **Sub Picture**, **Sub Color** und **Sub Brightness** werden nicht wie im Service Manual beschrieben abgeglichen, sondern durch Eingabe von optimierten Werten voreingestellt. Eine Ausnahme ergibt sich bei 4:3-Geräten, hier ist die Funktion **Sub Color** wie auf Seite 19 beschrieben abzugleichen.

Sub Adjust

Zu Funktion **04-07**:

Die für alle Geräte aufgeführten Einstellwerte sind optimierte Vorgaben und dürfen im Servicefall nicht verändert werden.

Zu Funktion **08-09**:

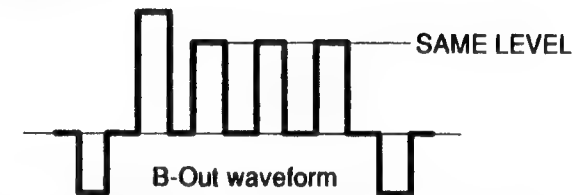
Adj. = Abgleich erforderlich (Siehe Seite 19/20).

Sub Adjust

Zu Funktion **02 (Sub Color / Adjustment nur bei 4:3):**

Sub Color Adjustment

1. Input a PAL color bar signal.
2. Connect an oscilloscope to **pin 3** of **CN3703 / C-Board** (z.B. KV-29C3).
2. Connect an oscilloscope to **pin 3** of **CN0403 / C-Board** (z.B. KV-32WX2 or KV-32WS4).
3. Enter into **Service mode**.
4. Choose **Sub Adjustment**.
5. Enter into **Sub Color mode**.
6. Adjust the sub colour data so that cyan, magenta and blue colour bars are of equal height.



Achtung: Bei 16:9-Modellen ist kein Abgleich erforderlich, hier wird der Einstellwert mit -2 vorgegeben (siehe auch Seite 17).

Zu Funktion **08-09:**

PAT RGB Offset-und PAT RGB Gain-Einstellung

1. Im Test Mode 2 TT75 aufrufen (Informationszeile **L = XX_G = XX** wird im Text sichtbar).
2. PAT RGB Offset = **L** (Joystick/ROT: Cursor **nach links** bewegen bedeutet, der Einstellwert wird **kleiner**. Joystick/**GELB**: Cursor **nach rechts** bewegen bedeutet, der Einstellwert wird **größer**).
3. PAT RGB Gain = **G** (Joystick/**BLAU**: Cursor **nach unten** bewegen bedeutet, der Einstellwert wird **kleiner**. Joystick/**GRÜN**: Cursor **nach oben** bewegen bedeutet Einstellwert wird **größer**).

Sub Adjust

To get correct working PaT function the text level of Megatext has too much tolerance. Therefore this level has to be adjusted in CBA. Adjustable is the **gain (a)** and the **offset value (b)** of the output stages R, G and B of Megatext. The output signals looks like diagramm 1. In CBA the levels for RGB (**Pin 1,3,5/CN412**) has to be adjusted:

a to 1,35V, **b** to 0,95V (Einstellen mit TT75/ siehe auch Seite 19).



This has to be done in PaT mode. Be careful the 5V supply voltage of A-Board should be correct. The result has to be stored in NVM Bank AE MTX Byte 4 24hex. Bit 0-2 is **b**, Bit 3-7 is **a**.

TDA 4780 (Video Proc)

Nr.	Funktion	Einstellwerte des TDA4780						siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration			
			TT49	TT84	All	4:3	16:9	
01	BRT	31	31	31	31			
02	COL	31	31	31	31			
03	PIC	53	53	53	53			
04	HUE	31	31	31	31			
05	R GAIN	37	37	37		40	31	K
06	G GAIN	16	16	16	Adj.			K
07	B GAIN	8	8	8	Adj.			K
08	R LVL REF	31	31	31	31			
09	G LVL REF	31	31	31	Adj.			K
10	B LVL REF	31	31	31	Adj.			K
11	PEAK DRV LIMIT	63	63	63		55	48	K
12	GAMMA	31	31	31		31	0	K
13	SCP ON = 3LEV OFF = 2LEV	off	off	off	off			
14	DELAY	off	off	off	off			
15	DATA BUF	off	off	off	off			
16	NTSC MATRIX	off	off	off	off			
17	HDTV	off	off	off	off			
18	FSBL	off	off	off	off			
19	AUTO CUT OFF	on	on	on	on			
20	FSW 2 DIS	off	off	off	off			
21	FSW 2	off	off	off	off			
22	FSW 1 DIS	off	off	off	off			
23	FSW 1	off	off	off	off			
24	ADAPT BLACK	off	off	off		on	off	

TDA 4780 (Video Proc)

Nr.	Funktion	Einstellwerte des TDA4780						siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration			
			TT49	TT84	All	4:3	16:9	
25	Y HIGH 1V	off	off	off	off			
26	MOD2	off	off	off	off			
27	BLUE STRETCH	on	on	off	.			
28	VM OUT	off	off	off	off			
29	PEAK DRV ABS	on	on	on	on			
30	TIME CNST PEAK LIMIT	off	off	off	off			

K = Korrektur

Nach einem **EEPROM-Austausch**, nach Eingabe von **TT84** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Funktionen **05-07** und **09-12** nach Abgleichanleitung erfolgen.

Zu Funktion 27: * (Switch off for whitebalance adjustment and switch on for shipping TT08 / Test Mode 2).

TDA9144 (Col Dec Main)

Nr.	Funktion	Einstellwerte des TDA9144				siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration All	
			TT49	TT85		
01	Source	2	2	2	0	K
02	Trap bypass	off	off	off	off	
03	Comb Filter	on	on	on	off	K
04	Loop closed	on	on	on	on	
05	Time Const	0	0	0	1	K
06	XTAL	3	3	3	3	
07	Field Frq	3	3	3	3	
08	OutPort A	off	off	off	off	
09	OutPort B	off	off	off	off	
10	Standard	0	0	0	0	
11	Forced RGB	off	off	off	off	
12	Enable FS	off	off	off	off	
13	External RGB clamp	off	off	off	off	
14	Hue	32	32	32	31	K
15	Line Lock HA mode	on	on	on	on	
16	Force wide window	off	off	off	off	
17	Ext. MACP chroma filt	off	off	off	off	
18	Pal+ Helper demod.	off	off	off	off	
19	Pal+ Helper blank	0	0	0	0	
20	Lumi to Helper delay	0	0	0	1	K
21	Blanked Sync on Yout	off	off	off	off	
22	Baseband delay bypass	off	off	off	off	
23	Low Power Standby	off	off	off	off	
24	MacroVision gating	on	on	on	off	K

Nr.	Funktion	Einstellwerte des TDA9144				siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration	
			TT49	TT85	All	
25	Lumi delay control	7	7	7	9	K

K = Korrektur

Nach einem **EEPROM-Austausch**, nach Eingabe von **TT85** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Funktionen **01, 03, 05, 14, 20, 24** und **25** nach Serienkonfiguration erfolgen.

Zu Funktion 17-20: (used in TDA9144 only)

Color Dec TDA9143 (Anwendung bei nicht Pal Plus-Geräten) / Color Dec TDA9144 (Anwendung bei Pal Plus-Geräten).

Zu Funktion 24 (Macro Vision gating):

Diese Funktion wurde zwischenzeitlich neu bestimmt und könnte bei der Überprüfung bzw. Menüdurchsicht unterschiedliche Einstellungen aufweisen. Wie der Einstellhilfe zu entnehmen ist, wird sie heute für alle Gerätetypen (AE4) von **on-** auf **off-Zustand** umprogrammiert.

Nr.	Funktion	Einstellwerte des SDA9361								siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration					
			TT49	TT76	All	25 inch	28 inch	29 inch	32 inch	
01	V Size	19	19	19	Adj.					K
02	V Centre	224	224	224	Adj.					K
03	V Linearity	250	250	250	Adj.					K
04	S Correction	171	171	171	Adj.					K
05	H Size	42	42	42	Adj.					K
06	Pin Amp	209	209	209	Adj.					K
07	Up Corner Pin	240	240	240	Adj.					K
08	Low Corner Pin	220	220	220	Adj.					K
09	V Bow	251	251	251	Adj.					K
10	Pin Phase	167	167	167	Adj.					K
11	V Angle	235	235	235	Adj.					K
12	HDE	on	on	on	on					S
13	VR	0	0	0	0					S
14	RABL	on	on	on	on					S
15	Blk Dis	off	off	off	off					S
16	2FH 2*Line Frq	on	on	on	on					S
17	Standby Mode	off	off	off	off					S
18	Vertical	on	on	on	on					S
19	BSE Blk select	off	off	off	off					S
20	SSE Start Scan	off	off	off	off					S
21	SRSE Start Red Scan	off	off	off	off					S
22	GBE Guard band	off	off	off	off					S
23	STE Scan time table	off	off	off	off					S
24	NSA Self Adaption	on	on	on	on					S

SDA 9361 (Deflect. Cont)

Nr.	Funktion	Einstellwerte des SDA9361								siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration					
			TT49	TT76	All	25 Inch	28 Inch	29 Inch	32 Inch	
25	V EHT comp	0	0	0		110	111	75	90	K/S
26	H EHT comp	0	0	0		100	85	35	90	K/S
27	H Centre	63	63	63	32					K/S
28	PWM start	0	0	0	0					S
29	D/A	0	0	0	0					S
30	V blk time	0	0	0		28	28	28	27	K/S
31	H blk time	0	0	0	37					K/S
32	Start V Scan	0	0	0	0					S
33	H blk phase	0	0	0	61					K/S
34	V Scan width 0	0	0	0	0					S
35	V Scan width 1	0	0	0	0					S
36	Guard Band	0	0	0	0					S
37	Start red. scan	0	0	0	0					S
38	Number fields	1	1	1	1					S
39	NI Non Interlace	off	off	off	off					S
40	NR Vsync Noise Red	on	on	on		off	on	off	on	K/S
41	SSC with VBL	on	on	on	on					S
42	Min lines/field	0	0	0	0					S
43	Max lines/field	0	0	0	0					S
44	AFC EHT comp	0	0	0	0					S
45	PLL Freq	6	6	6	6					S
46	VCR	on	on	on	on					S
47	Gen Mod	off	off	off	off					S
48	HSWID	on	on	on	on					S

Nr.	Funktion	Einstellwerte des SDA9361								siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration					
			TT49	TT76	All	25 Inch	28 Inch	29 Inch	32 Inch	
49	Int H phase	0	0	0		7	Adj.	7	Adj.	K/S
50	PWM width	0	0	0	0					S
51	Noisy VCR	off	off	off	off					S
52	Killzip	off	off	off	off					S
53	tc3rd	off	off	off	off					S
54	Bandgap4 off	off	off	off	off					S
55	Bandgap off	off	off	off	off					S
56	Bandgap	0	0	0	0					S

K = Korrektur / S = Service Mode

Nach einem **EEPROM-Austausch**, nach Eingabe von **TT76** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Funktionen **01-11, 25-27, 30-31, 33, 40** und **49** nach Serienkonfiguration erfolgen. Die Funktionen 01-11 sind abzugleichen, da es sich hier um Geometrieinsteller handelt.

Alle mit einem **S** versehenen Funktionen werden im IC-Menü weiß dargestellt und sind nicht veränderbar (siehe **TT04/Testmode 2**). Um dennoch Korrekturen durchführen zu können, ist der Programmplatz **99** anzuwählen und danach der Befehl **TT05/Testmode 2** einzugeben. Nach erfolgter Korrektur den Service Mode über **Programmplatz 99** und **TT04** wiederherstellen.

Zu Funktion **49** (Int H phase): Siehe **Test Mode 2/TT31** bzw. siehe aktuelle Servicehilfe.

Nr.	Funktion	Einstellwerte des TDA9143							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT86	All	C3	WX2	WS4	
01	Source	2	2	2	0				K
02	Trap bypass	off	off	off	off				
03	Comb Filter	off	off	off	off				
04	Loop closed	on	on	on	on				
05	Time Const	0	0	0	0				
06	XTAL	3	3	3	3				
07	Field Frq	3	3	3	3				
08	OutPort A	off	off	off	off				
09	OutPort B	off	off	off	off				
10	Standard	0	0	0	0				
11	Forced RGB	off	off	off	off				
12	Enable FS	off	off	off	off				
13	External RGB clamp	off	off	off	off				
14	Hue	32	32	32	31				K
15	Line Lock HA mode	on	on	on	on				
16	Force wide window	off	off	off	off				
17	Pal+ Helper blank	0	0	0	0				
18	Baseband delay bypass	off	off	off	off				
19	Low Power Standby	off	off	off	off				
20	MacroVision gating	on	on	on		off	off	on	K
21	Lumi delay control	7	7	7	9				K

K = Korrektur

Nach einem **EEPROM-Austausch**, nach Eingabe von **TT86** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Funktionen **01, 14, 20 und 21** nach Serienkonfiguration erfolgen.

S87C654 (Feature Box)

Nr.	Funktion	Einstellwerte des S87C654							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT81	All	C25/C29	28/32WX	28/32WS	
01	FRQ Acqui	1	1	1	1				
02	FRQ Displ	1	1	1	1				
03	Acq Field 60Hz	off	off	off	off				
04	Pic Pos	0	0	0	0				
05	Init ECO/Bend/Nor	off	off	off	off				
06	LFR	on	on	on	off				K
07	NR AABB	off	off	off	off				
08	AABB Cor	off	off	off	off				
09	Cor Phase	off	off	off	on				K
10	Cine	off	off	off	off				
11	Phase	off	off	off	off				
12	Auto Movie	off	off	off		off	on	on	K
13	Still	off	off	off	off				
14	V Zoom	off	off	off	off				
15	Zoom	0	0	0	0				
16	SDAF	off	off	off		off	*	**	K
17	Gen Mode	off	off	off	off				
18	Sat Mode	off	off	off	off				
19	Pip pos	0	0	0	0				
20	Pip Freeze	off	off	off	off				
21	3*4 Pip	off	off	off		off	on	on	K
22	Mlt Pip	off	off	off	off				
23	Pip 60Hz	off	off	off	off				
24	Noise Red	0	0	0		0	2	2	K

S87C654 (Feature Box)

Nr.	Funktion	Einstellwerte des S87C654							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT81	All	C25/C29	28/32WX	28/32WS	
25	Split Screen	0	0	0	0				
26	Screen Fade	0	0	0	0				
27	Phase Adapt	off	off	off	off				
28	res	off	off	off	off				
29	HWE	0	0	0	9				K
30	HAMSBDEL 2	off	off	off	off				
31	HAMSBDEL 3	off	off	off	off				
32	Take HAMSBDEL	off	off	off	off				
33	HWE 2steps	off	off	off	off				
34	VWE up	off	off	off	off				
35	VWE1D0	0	0	0	0				
36	Blank_F0	off	off	off	off				
37	Blank_F1	off	off	off	off				
38	Blank_F2	off	off	off	off				
39	Blank_F3	off	off	off	off				
40	res	off	off	off	off				
41	res	off	off	off	off				
42	res	off	off	off	off				
43	res	off	off	off	off				
44	PalPlus	off	off	off	off				
45	Dis_Blank	off	off	off	off				
46	Half P14	off	off	off	off				
47	VGA P13	off	off	off	off				
48	VFreq P15	off	off	off	off				

S87C654 (Feature Box)

Nr.	Funktion	Einstellwerte des S87C654							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT81	All	C25/C29	28/32WX	28/32WS	
49	VM P34	on	on	on	on				
50	Master P35	off	off	off	off				
51	VDFL_inc	off	off	off	off				
52	res P20	off	off	off	off				
53	PaP P21	off	off	off	off				
54	TaT P22	off	off	off	off				
55	Frame P23	off	off	off	off				
56	Format P24	off	off	off	off				
57	Pat P25	off	off	off	off				
58	SubStill P26	off	off	off	off				
59	H Lock P27	on	on	on	on				
60	Take R12	off	off	off	off				
61	R12 Hor Delays	0	0	0	0				
62	Take R13/14	off	off	off	off				
63	R13 HWE2STA	0	0	0	214				K
64	R14 HWE2STO	0	0	0	208				K
65	Take R15/16	off	off	off	off				
66	R15 VWE2STA	0	0	0	20				K
67	R16 VWE2STO	0	0	0	47				K
68	Take R17	off	off	off	on				K
69	R17 HDDEL	0	0	0	7				K
70	Take R18	off	off	off	off				
71	R18 HDMSB	0	0	0	225				K
72	Take R19	off	off	off	off				

S87C654 (Feature Box)

Nr.	Funktion	Einstellwerte des S87C654							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT81	All	C25/C29	28/32WX	28/32WS	
73	R19 VDMSB	0	0	0	0				
74	Take Reg20/21	off	off	off	off				
75	R20 HDSTA	0	0	0	0				
76	R21 HDSTO	0	0	0	0				
77	Take Reg22	off	off	off	on				K
78	R22 HWE1 Main	0	0	0		50	Adj.	Adj.	K
79	R23 Taste	0	0	0	4				K
80	R24 Status	0	0	0	0				
81	R25 NE	0	0	0	200				K
82	R26 Noise Est	0	0	0	0				

K = Korrektur

Nach einem EEPROM-Austausch, nach Eingabe von TT81 oder nach Eingabe von TT49 muß eine Aktualisierung der grau gekennzeichneten Funktionen 06, 12, 16, 21, 24, 29, 63-64, 66-69, 71, 77-79, und 81 nach Serienkonfiguration erfolgen.

Zu Funktion 16 (SDAF):

Gerätetyp	Land
*WX2:	
	A / B / U =off
	D / E =on
**WS4:	
	B =off
	OTHERS =on

Zu Funktion 78 (R22 HWE1 Main): Siehe Test Mode 2/TT32 bzw. siehe aktuelle Servicehilfe. 28/32WX- und 28/32WS-Geräte müssen im Test Mode 2 mit Hilfe von TT32 eingestellt werden. Den Einstellwert anschließend im IC-Menü überprüfen. Bei Pal Plus-Geräten darf er nicht auf 64 eingestellt sein. Wenn doch, dann als neue Einstellung 63 oder 65 vorgeben.

Nr.	Funktion	Einstellwerte des TDA9170					siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT82	Serienkonfiguration All	
			siehe Text	siehe Text			
01	Sleep mode	on	on	on	on	on	
02	Amplitude selection	on	on	on	on	on	
03	Window selection	3	3	0	0	0	K
04	Black offset enable	on	on	on	on	on	
05	User variable gamma	63	63	32	32	32	K
06	Adaptive gamma	63	63	15	15	15	K
07	Non - linear ampl.	63	63	15	15	15	K
08	Line start	15	15	0	0	0	K
09	Line stop	15	15	0	0	0	K
10	Field start	15	15	0	0	0	K
11	Field stop	15	15	0	0	0	K

K = Korrektur

Nach einem **EEPROM-Austausch** muß eine Aktualisierung der grau gekennzeichneten Funktionen **03 und 05-11** nach Serienkonfiguration erfolgen. Der Abgleich kann vereinfacht werden, wenn der Befehl **TT82** genutzt wird. Wie der Tabelle zu entnehmen ist, gleicht der Befehl **TT82** auf die Einstellwerte eines Seriengerätes ab.

Der Befehl **TT49** nimmt bei diesem IC eine Sonderstellung ein. Nach Eingabe von **TT49** würden sich die Einstellwerte eines Seriengerätes nicht verändern. Einstellwerte die sich nach einem EEPROM-Austausch einstellen, werden durch Eingabe von **TT49** ebenfalls nicht verändert.

SDA9280 (DA)

Nr.	Funktion	Einstellwerte des SDA9280							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT77	All	C3	WX2	WS4	
01	Int 444	on	on	on	on				
02	Int 422	on	on	on	on				
03	Incode	on	on	on	on				
04	Incodl	off	off	off	off				
05	Infor	1	1	1	1				
06	Insneg	off	off	off	on				K
07	Trawid	4	4	4	11				K
08	Thresh	4	4	4	11				K
09	Vinv	off	off	off	off				
10	Uinv	off	off	off	off				
11	Cgrres	0	0	0	0				
12	Cgr	off	off	off	off				
13	Ydel1	8	8	8		8	9	9	K
14	Yinv	off	off	off	off				
15	Ygrres	0	0	0	0				
16	Ygr	off	off	off	off				
17	Bcof	8	8	8	4				K
18	Lcof	4	4	4	4				
19	Hcof	8	8	8	4				K
20	Phacom	0	0	0	2				K
21	Cor	off	off	off	on				K
22	Comex	off	off	off	off				
23	Comp	on	on	on	off				K
24	Readd	0	0	0	0				

SDA9280 (DA)

Nr.	Funktion	Einstellwerte des SDA9280							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TT49	TT77	All	C3	WX2	WS4	
25	Ovsamp	on	on	on	on				
26	Ovfilt	on	on	on	on				
27	Backgr	on	on	on	off				K
28	Hsdel	53	53	53	1				K
29	Bckpos	182	182	182	201				K
30	Bckwid	25	25	25	96				K
31	Black	16	16	16	71				K
32	Colby	0	0	0	1				K
33	Colfy	0	0	0	0				
34	Colbu	0	0	0	0				
35	Colfu	0	0	0	0				
36	Colbv	0	0	0	0				
37	Colfv	0	0	0	0				
38	Ydel2	off	off	off	off				
39	Ampv	on	on	on	on				
40	Ampu	on	on	on	on				
41	Ampy	on	on	on	on				
42	Pllon	off	off	off	on				K
43	Pllran	3	3	3	3				
44	Test11	0	0	0	0				
45	Test12	0	0	0	0				
46	Test13	0	0	0	0				
47	Divvco	4	4	4	4				
48	Divref	3	3	3	4				K

Nr.	Funktion	Einstellwerte des SDA9280							siehe Text
		EEPROM (neu)	nach Eingabe von		Serienkonfiguration				
			TY49	TY77	All	C3	WX2	WS4	

K = Korrektur

Nach einem **EEPROM-Austausch**, nach Eingabe von **TT77** oder nach Eingabe von **TT49** muß eine Aktualisierung der grau gekennzeichneten Funktionen **06-08, 13, 17, 19-21, 23, 27-32, 42** und **48** nach Serienkonfiguration erfolgen.

Zu Funktion 23 (Comp)

Diese Funktion kann zum Beispiel im Wide Mode aktiv geschaltet und von off- auf on-Zustand umgeschaltet werden. Ein zurücksetzen auf den alten Wert (off) wäre anschließend nicht mehr möglich. Wie man der Einstellhilfe entnehmen kann, ist dieser Schalter nach einem EEPROM-Austausch aber von on- auf off-Zustand zu korrigieren. In beiden Fällen kann eine Änderung **nur im 4:3-Mode** erfolgen.

Zu Funktion 24 (Readd)

Wird diese Funktion im 4:3-Mode aktiv geschaltet, dann verändert sich der Einstellwert von 0 auf 45. Im **Wide Mode** kann diese Funktion dann wieder auf 0 zurückgesetzt werden (aktivieren-verändern-ok).

Zu Funktion 27 (Backgr)

Nach einem EEPROM-Austausch setzt sich dieses Parameter automatisch auf on-Zustand. **Nur im Wide Mode** kann diese Funktion von on- auf off-Zustand zurückgesetzt werden (aktivieren-verändern-ok).

Zu Funktion 32 (Colby)

Der nach einem EEPROM-Austausch vorherrschende Einstellwert 0 läßt sich **nur im 4:3-Mode** von 0 nach 1 hin korrigieren. Eingestellt werden die im 4:3-Mode links und rechts auftretenden schwarzen Balken. Der Einstellbereich erstreckt sich von 0 (dunkel) bis nach 15 (grau).

Zu Funktion 47/48 (Divvco/Divref)

Um nach einem EEPROM-Austausch bei der Funktion 48 (Divref) wieder den Einstellwert 4 zu erhalten, ist diese **einmal im Wide Mode** zu aktivieren und umzuschalten.

SDA9288 (Single PIP)

Nr.	Funktion	Einstellwerte des SDA9288					siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT87	Serienkonfiguration All	
			siehe Text	siehe Text			
01	PIPON	on	on	off	on	off	K
02	FRAME	on	on	off	off	off	
03	LINEDBL	on	on	off	off	off	
04	READ27	on	on	off	on	off	K
05	PLLOFF	on	on	off	off	off	
06	FREEZE	on	on	off	off	off	
07	SYSACT	on	on	off	off	off	
08	MIXDIS	on	on	on	on	on	
09	SELDEL	15	15	1	1	1	
10	POSHOR 8-9	3	3	0	0	0	
11	POSHOR 0-7	255	255	12	192	12	K
12	POSERVER	255	255	48	48	48	
13	YDEL	7	7	0	0	0	
14	SW1	3	3	0	0	0	
15	SW2	3	3	0	0	0	
16	IMOD	3	3	0	0	0	
17	PMOD	3	3	0	0	0	
18	CHRINS	on	on	on	on	on	
19	INSHVI	on	on	on	on	on	
20	DECHOR	on	on	off	off	off	
21	DECVER	on	on	off	off	off	
22	HSIDEL	15	15	5	4	5	K
23	CLISW	on	on	on	off	on	K
24	CLPFIX	on	on	off	off	off	
25	CLPS	on	on	off	off	off	

SDA9288 (Single PIP)

Nr.	Funktion	Einstellwerte des SDA9288					siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT87	Serienkonfiguration All	
			siehe Text	siehe Text			
26	VSIDEL	31	31	0	0	0	
27	VSIIISQ	on	on	off	off	off	
28	AMSEC	on	on	off	off	off	
29	VSPDEL	31	31	0	0	0	
30	VSPISQ	on	on	off	off	off	
31	PARSYND	on	on	on	on	on	
32	FRY	15	15	8	8	8	
33	CON	15	15	4	4	4	
34	FRU	15	15	0	0	0	
35	FRV	15	15	0	0	0	
36	FRWIDH	7	7	2	2	2	
37	FRWIDV	3	3	1	1	1	
38	OUTFOR	on	on	on	on	on	
39	CHRPPI	on	on	on	on	on	
40	MAT	7	7	4	4	4	
41	DACONDE	on	on	off	off	off	
42	PLLTC	3	3	3	1	3	K
43	DACONST	on	on	off	off	off	
44	LEFT POS	255	255	195	190	195	K
45	RIGHT POS LOW	255	255	0	11	0	K
46	RIGHT POS HIGH	3	3	2	2	2	
47	UPPER POS	255	255	58	55	58	K
48	LOWER POS	255	255	178	185	178	K

SDA9288 (Single PIP)

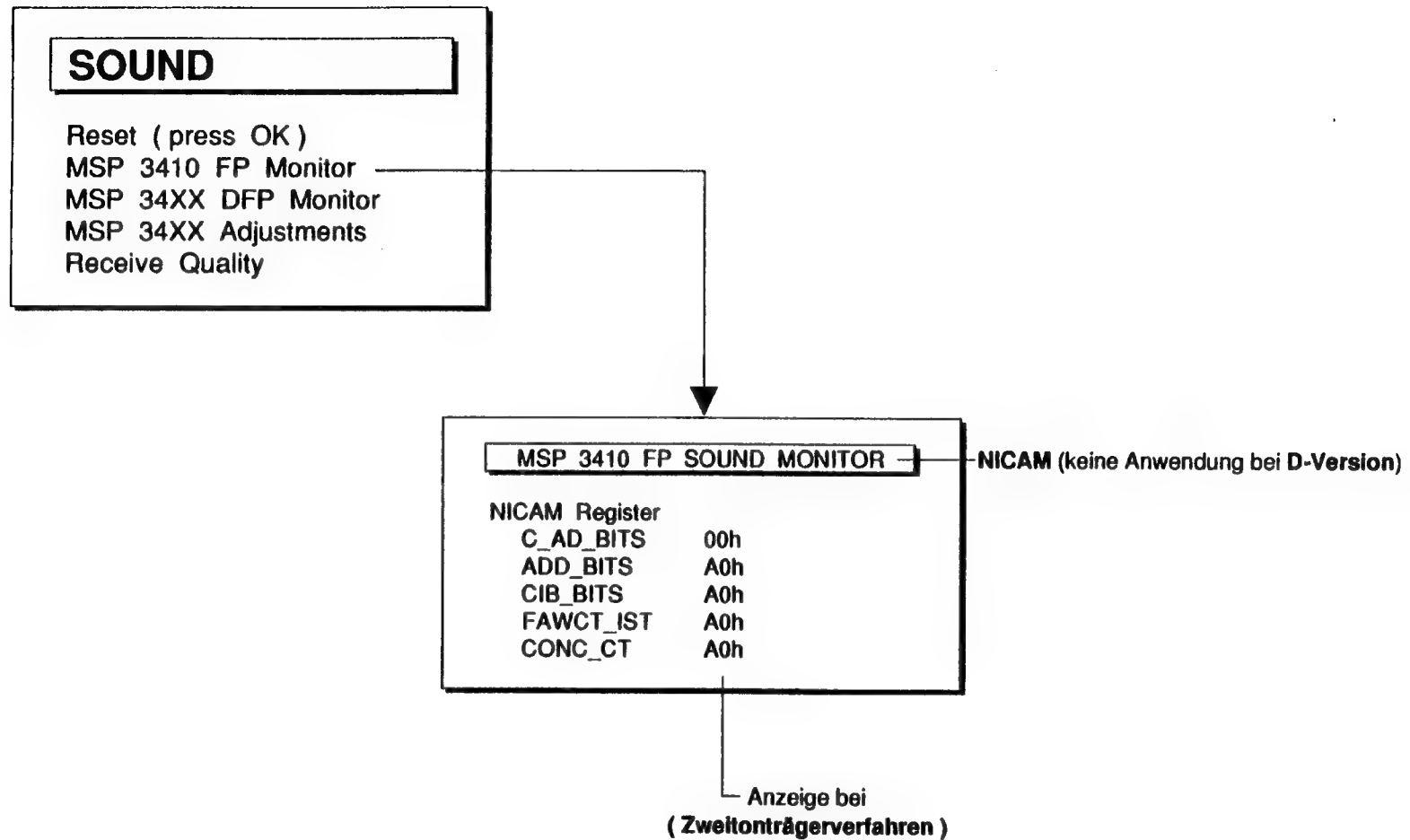
Nr.	Funktion	Einstellwerte des SDA9288					siehe Text
		EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT87	Serienkonfiguration All	
			siehe Text	siehe Text			

K = Korrektur

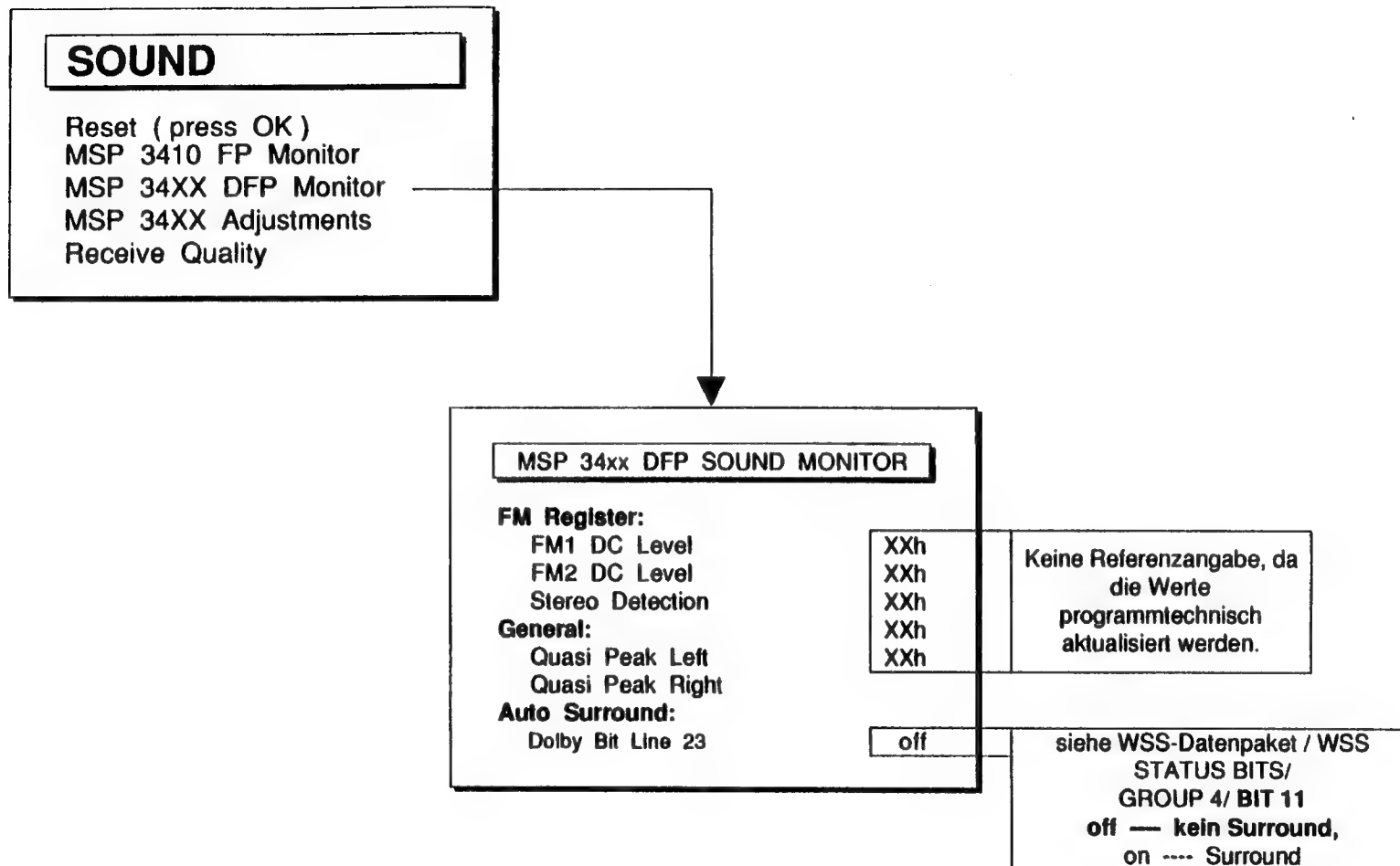
Nach einem **EEPROM-Austausch** muß eine Aktualisierung der Einstellwerte erfolgen. Der Abgleich kann vereinfacht werden, wenn der Befehl **TT87** genutzt wird. Anschließend sind in der Tabelle dann nur noch die grau gekennzeichneten Funktionen **01, 11, 22-23, 42, 44-45** und **47-48** nach Serienkonfiguration einzustellen.

Der Befehl **TT49** nimmt bei diesem IC eine Sonderstellung ein. Nach Eingabe von **TT49** würden sich die Einstellwerte eines Seriengerätes nicht verändern. Einstellwerte die sich nach einem EEPROM-Austausch einstellen, werden durch Eingabe von **TT49** ebenfalls nicht verändert.

Sound



Sound



Sound

SOUND

Reset (press OK)
MSP 3410 FP Monitor
MSP 34XX DFP Monitor
MSP 34XX Adjustments
Receive Quality

Die Funktion **Reset (ok)** reproduziert im nachfolgend aufgeführten Untermenü die Einstellwerte eines Seriengerätes.

Vorgabe der Einstellwerte für
alle Modelle (All)
siehe
Seite 45

Einstellwerte
eines
Seriengerätes
z.B. WS4

MSP 3400 / 10 ADJUSTMENTS

Werte nach
EEPROM (neu)
Korrektur

SCART Prescale	(1Bh)	[1Bh]	1Bh
FM Prescale	(24h)	[24h]	24h
NICAM Prescale B/G	(7Fh)	[7Fh]	7Fh
NICAM Prescale L	(7Fh)	[7Fh]	7Fh
NICAM Prescale I	(7Fh)	[7Fh]	7Fh
NICAM Prescale D/K	(7Fh)	[7Fh]	7Fh
Volume SCART Ch.	(40h)	[40h]	40h
Treble-Offset	(0)	[0]	-1
Bass-Offset	(model)	[0]	-1
Loudness-Offset	(model)	[0]	+8
ANA Input 1/2	(0)	[0]	0
Beeper	(off)	[off]	on
Beeper Volume	(06h)	[06h]	7Fh
HP PAP Volume-Off.	(-1)	[-1]	-1
Ext. D/A Conv.	(model)	[0]	2

Gerätespezifische
Einstellungen /
Korrektur erforderlich
siehe Seite 45

zu MSP 3400 / 10 ADJUSTMENTS

Funktion	EEPROM (neu)	nach Reset (press ok)	Serie	
SCART Prescale	1Bh	1Bh	1Bh	
FM Prescale	24h	24h	24h	
NICAM Prescale B/G	7Fh	7Fh	7Fh	
NICAM Prescale L	7Fh	7Fh	7Fh	
NICAM Prescale I	7Fh	7Fh	7Fh	
NICAM Prescale L	7Fh	7Fh	7Fh	
NICAM Prescale I	7Fh	7Fh	7Fh	
Treble-Offset	-1	0	0	
Bass-Offset	-1	0	(model) 0	K / siehe Seite 45
Loudness-Offset	+8	+8	(model) 0	K / siehe Seite 45
ANA Input 1/2	0	0	0	
Beeper	on	off	off	
Beeper Volume	7Fh	06h	06h	
HP PAP Volume-Off.	-1	-1	-1	
Ext. D/A Conv.	2	2	* (model) 0	K / siehe Text

Alle gerätespezifischen Einstellungen (**model**) müssen nach Eingabe von Reset (press ok) anhand der Einstellhilfe korrigiert werden.

zu ANA Input 1/2:

Diese Einstellmöglichkeit wird in der Fertigung nur für Testzwecke eingesetzt. Änderungen werden nicht im NVM gespeichert. Nach TT00 oder Power OFF/ON ist die automatische Abfrage wieder zugeschaltet.

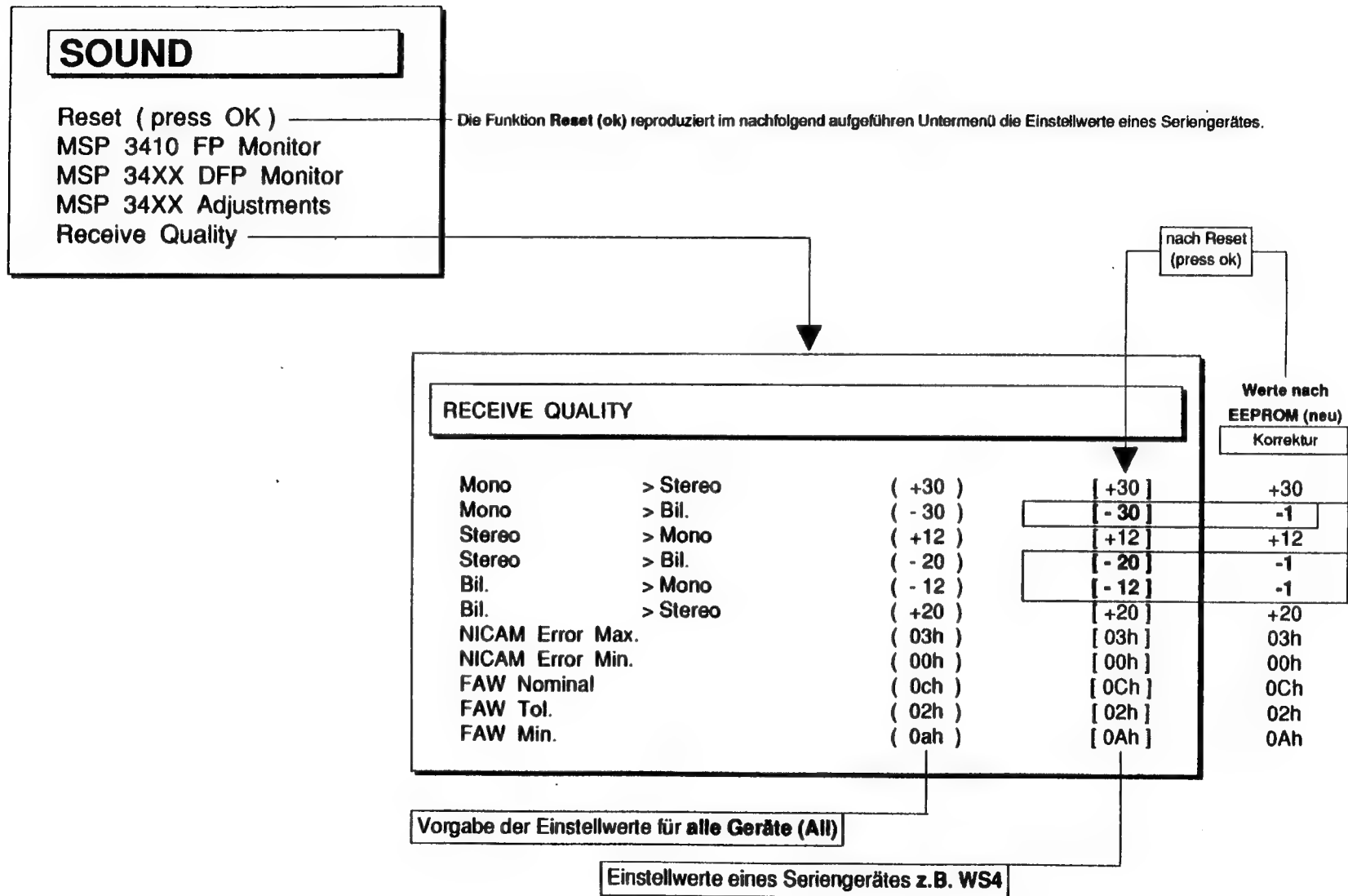
0 = Automatisch (Norm I & D/K = Analogeingang 1, Norm B/G & L = Analogeingang 2)

1 = Analogeingang 1, 2 = Analogeingang 2

zu Ext. D/A Conv.

* **Adr_Enable_EXT_D/A:** 0 = ext. D/A OFF (WS-Model ohne NICAM), 1 = ext. D/A ON (WS-Model mit NICAM), 2 = auto det. ext. D/A (depend on NICAM MSP).

Sound



Sound

MSP 3400/10 ADJUSTMENT	All
Scart Pr	1Bh
FM PRESC	24h
N-P B/G	7Fh
N-P L	7Fh
N-P I	7Fh
N-P D/K	7Fh
Volume Scart Channel	40h
Treble	0
Bass	0
Beeper ON/OFF	off
Beeper-Volume	06h

MSP 3400/10 ADJUSTMENT	All	C3	WX2	WS4
Volume Level Speaker	22			
Volume Level Headphone	22			
Balance	00			
Pap Headphone Volume Offset	-1			
Treble Offset	0			
Bass Offset		2	2	0
Sound effects	00			
Offset L	00			
Offset C	00			
Offset R	00			
Offset S	00			
Loudness Offset		9	5	0
Adr Enable EXT_DA		0	0	* (siehe Seite 42)
Sound Control	00			
Dolby Setup	03			
Sounddelay Setup	03			
Intelligent Sound Mode	00			

PALPLUS			
		Monitor	
		Bin	Hex
	Helper Gain	0	
	Helper Offset	0	
	Y Black	0	
	Y White	0	
	Noise	0	
	L.-F.S.N.-1.0	00011010	1A
	S.u.H.C.F.F.m.t	00000000	00

Nr.	Funktion	EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT78	Serienkonfiguration All	siehe Text
			siehe Text	siehe Text			
01	Modes setting	11111111	11111111	00000000	00000000	00000000	
02	Help. G. Control	63	63	42	42	42	
03	Help. O. Control	-1	-1	-7	-13	-7	K
04	TDA 9144 HUE	32	32	32	32	31	G
05	Luma G. Control	0	0	0	0	0	G
06	Luma O. Control	-1	-1	-31	-32	-31	K
07	Adapt. Notch V	15	15	7	15	7	K
08	Adapt. Notch U	15	15	7	15	7	K
09	100 Hz	2	2	0	0	0	G

Line23 det

Nr.	Funktion	EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT78	Serienkonfiguration All	siehe Text
			siehe Text	siehe Text			
10	Auto / Man	00000000	00000000	00000000	00000000	00000000	G
11	VTR H/C+ on	255	255	75	75	75	
12	VTR H/C+ off	255	255	85	85	85	
13	TDA 9144P+HeBl	off	off	off	off	off	G
14	TDA 9144LuHeDy	off	off	off	off	on	G
15	TDA 9144BaDyLi	off	off	off	off	off	G
16	TDA 9144LuDeCo	on	on	on	on	on	G
17	ZoomPosPTCstar	03FFh	03FFh	000Ch	0000h	000Ch	K
18	ZoomPosECOstar	03FFh	03FFh	0000h	0000h	0000h	
19	ZoomPos invert	on	on	off	off	off	
20	PALencoderCphs	on	on	on	on	on	
21	PALencoderCsel	on	on	on	on	on	
22	PALencoderCinv	on	on	on	on	on	
23	MasterClkMCphs	3	3	0	0	0	
24	MasterClkMCsel	on	on	on	on	on	
25	Hout Delay	3	3	0	0	0	
26	Hhigh	03FFh	03FFh	02CEh	02CEh	02CEh	
27	Hlow	03FFh	03FFh	0007h	0007h	0007h	
28	PLL Set	07FFh	07FFh	06BFh	06BFh	06BFh	

K = Korrektur/G = Gesperrt

Erklärender Text zum Abgleich (Line23 det) siehe Seite 48

Line23 det

Nr.	Funktion	EEPROM (neu)	EEPROM (neu) plus TT49	Serie plus TT49	nach Eingabe von TT78	Serienkonfiguration All	siehe Text
			siehe Text	siehe Text			

Nach einem **EEPROM-Austausch** muß eine Aktualisierung der Einstellwerte im **Menü Line23 det** erfolgen. Der Abgleich läßt sich vereinfachen, wenn der Befehl **TT78** genutzt wird. Anschließend sind dann nur noch die in der Tabelle **grau** oder durch ein **K** gekennzeichneten Funktionen **03, 06-08** und **17** nach Serienkonfiguration zu korrigieren.

Die zusätzlich noch durch ein **G** gekennzeichneten Funktionen **04-05, 09, 10** und **13-16** finden zur Zeit keine Anwendung und sind generell gesperrt. Deshalb brauchen mit **G** versehene Einstellungen im Abgleich nicht mehr berücksichtigt bzw. grau gekennzeichnet werden, obwohl EEPROM- und Seriendaten unterschiedlich sind.

Der Befehl **TT49** nimmt bei diesem IC eine Sonderstellung ein. Nach Eingabe von **TT49** würden sich die Einstellwerte der Funktionen **04** und **14** eines Serengerätes verändern. Einstellwerte die sich nach einem EEPROM-Austausch einstellen, werden durch Eingabe von **TT49** nicht verändert.